CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL

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Submitted By

DR. MAYUR LUTHRA

DEPARTMENT OF GASTROENTEROLOGY
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA, PUNJAB

DECLARATION BY THE CANDIDATE

I hereby declare that the thesis entitled **"CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL"** submitted towards partial fulfillment of the requirements for the award of **D.M. Gastroenterology** degree to BFUHS is a compilation of original work carried out by me under the supervision of **Dr. Ajit Sood,** Professor and Head, Department of Gastroenterology and **Dr. Ramit Mahajan**, Professor, Department of Gastroenterology. No part of this thesis has formed the basis for the award of any degree previously.

_____

DR. MAYUR LUTHRA
Department of Gastroenterology
Dayanand Medical College & Hospital,
Ludhiana, Punjab

Date:

Place:

CERTIFICATE OF SUPERVISORS

This is to certify that the work incorporated in this thesis entitled **"CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL"** has been carried out by **Dr. Mayur Luthra** under our direct supervision. The data incorporated in this thesis is original and genuine and has been carried out by the candidate himself.

Signature of Supervisor

Dr. Ajit Sood
Professor and Head
Department of Gastroenterology
DMCH, Ludhiana

Signature of Co-Supervisor

Dr. Ramit Mahajan
Professor
Department of Gastroenterology
DMCH, Ludhiana

Date:

ENDORSEMENT BY THE HEAD OF THE INSTITUTE

This is to certify that the thesis entitled **"CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL"** is a bonafide research work done by **Dr. Mayur Luthra** under the supervision of **Dr. Ajit Sood**, Professor and Head, Department of Gastroenterology and **Dr. Ramit Mahajan**, Professor, Department of Gastroenterology in this institution.

Principal

Dr. Sandeep Puri
Principal
DMC&H, Ludhiana

Date:

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Dr. Mayur Luthra
Department of Gastroenterology
Dayanand Medical College & Hospital,
Ludhiana, Punjab

Date:

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Dedicated

to

my family

&

Teachers

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LIST OF ABBREVIATIONS

UC	Ulcerative Colitis
ASUC	Acute Severe Ulcerative Colitis
IVCS	Intravenous Corticosteroids
CMV	Cytomegalovirus
CD	Crohn’s Disease
IBD	Inflammatory bowel disease
UCEIS	Ulcerative colitis endoscopic index of severity
CDI	Clostridioides Difficile Infection
EBV	Epstein-Barr Virus
CAM	Complimentary and Alternative Medicine
BMI	Body Mass Index
MUAC	Mid Upper Arm Circumference
TSF	Triceps skin fold
hpf	High Power Field
PP	Per Protocol
ITT	Intention to treat

DM	Diabetes Mellitus
HTN	Hypertension
CAD	Coronary Artery Disease
UTI	Urinary Tract Infection
URTI	Upper Respiratory Tract Infection
5-ASA	5-Amino salicylic acid
AZA	Azathioprine
6-MP	6-Mercaptopurine
IFX	Infliximab
ADA	Adalimumab
VDZ	Vedolizumab
TOFA	Tofacitinib
FMT	Fecal Microbiota Transplant
TW Criteria	Truelove and Witts Criteria
SCCAI	Simple Clinical Colitis Activity Index
SIRS	Systemic Inflammatory Response Syndrome

ABSTRACT

Introduction: Acute severe ulcerative colitis (ASUC) is a potentially life-threatening complication.

Aim of Study: We aimed to identify the clinical profile and outcome of patients with acute severe ulcerative colitis presenting to a tertiary care centre.

Materials & methods: Hospitalized ASUC patients satisfying the Trulove and Witt's criteria from a tertiary care centre in northern India were included. The clinical profile, disease characteristics and possible precipitating factors for acute flare were assessed. Response to IV steroids was categorised as complete (≤ 3 stools/day without blood), partial (3-8 stools/day, with CRP <45 mg/dl) and non-response (>8 stools/day, or 3-8 stools/day and CRP>45 mg/dl). Patients were followed up for 3 months and outcomes at day 7, day 30 and day 90 were assessed.

Results: Of 79 ASUC patients, majority were young (<40 years, 51.9%) and presented within the first year of diagnosis (45.6%). The presentation to hospital was delayed (>7days of onset of symptoms in 88.6%), the disease was severe (81% fulfilled >2 TW criteria, in addition to bloody stool frequency ≥6 per day) and 72% patients were malnourished. The probable precipitating factors included infections (Clostridiodes difficile 18.9%, cytomegalovirus 12.6%, Ebstein Barr virus 43%), drugs (NSAIDs (13.9%), antibiotics (26.6%), complementary medicines), poor drug compliance (29.1%) and unaccustomed exercise (10%). The colectomy free survival at day 7 and day 30 was 83.5% and 84.2% (intention to treat) and 60.8% (per protocol), respectively.

Conclusion: Patients with ASUC in India are younger, present during early years of disease onset/diagnosis, have delayed presentation and a more severe disease. Possible precipitating causes include infections, drugs, non-compliance to therapy and unaccustomed exercise.

Keywords: acute severe ulcerative colitis, clinical profile, risk factors

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KEY TO MASTER CHART

CR	Complete Response
PR	Partial Response
NR	Non Response
R	Response
S	Surgery
E	Expired
DH	Discharged to home
DAMA	Discharged against medical advice
LFU	Lost to follow up
PD	Patient Discharged
D	Discharged
EEN	Exclusive Enteral Nutrition
TPN	Total Parenteral Nutrition
OSD	Oral Solid Diet
OSS	Oral Semisolid Diet
OLD	Oral Liquid Diet
ONS	Oral Nutritional Supplement
NPO	Nil Per Oral
IHC	Immunohistochemistry
EBV(ISH)	Epstein-Barr Virus by in situ hybridization stain
Hb	Hemoglobin
TLC	Total leucocyte count
PLT	Platelets
CRP	C-reactive protein
ESR	Erythrocyte Sedimentation Rate
FC	Fecal Calprotectin
CXR	Chest X-ray
C	Ceftriaxone
M	Metronidazole
Mer	Meropenem
V	Vancomycin

G	Gancyclovir
Val	Valgancyclovir
Ca	Calcium
BP	Blood Pressure
HR	Heart Rate
TEMP	Temperature
UCEIS	Ulcerative colitis endoscopic index of severity
MUAC	Mid upper arm circumference
BMI	Body Mass Index
WT	Weight
TSF	Triceps skin fold
SCCAI	Simple clinical colitis activity index
PPI	Proton pump inhibitors
TOFA	Tofacitinib
IFX	Infliximab
ADA	Adalimumab
5-ASA	5-Amino Salicylic Acid
VDZ	Vedolizumab
FMT	Fecal Microbiota Transplant
TAC	Tacrolimus
CYS-A	Cyclosporin-A
LMWH	Low Molecular Weight Heaprin

INTRODUCTION

UC is a chronic immune-mediated inflammatory condition of the large intestine that is frequently associated with inflammation of the rectum but often extends proximally to involve additional areas of the colon.[1] The initial presentation of new UC is characterized by symptoms of chronic inflammatory diarrhea with features of proctitis namely bleeding, urgency, and tenesmus. The condition may present at any time and at all ages, but there is a predominant age distribution of onset that peaks between ages 15 and 30 years. The pattern of disease activity is most often described as relapsing and remitting, with symptoms of active disease alternating with periods of clinical quiescence, which is called remission. Some patients with UC have persistent disease activity despite diagnosis and medical therapy, and a small number of patients present with the rapid-onset progressive type of colitis known as fulminant disease.[2,3]

Determination of the extent and severity of disease is important to select the appropriate treatment algorithm. Extent of the disease should be characterized according to the Montreal classification as proctitis (E1), left-sided colitis (E2), or extensive colitis (E3) (extension proximal to the splenic flexure).[4,5] Commonly, severity of UC has been classified according to the Truelove and Witts' [6] criteria published in 1955. Mild colitis is defined as fewer than 4 bowel movements daily, normal temperature, heart rate, hemoglobin (>11 g/dL), and ESR (<20 mm/hr). Severe disease is defined by bowel frequency greater than 6 times a day in conjunction with fever, tachycardia, anemia, or an elevation in ESR. Although simple to use and useful in defining the need for hospitalization, the index does not provide a quantitative or longitudinal measure of severity, excludes other important symptoms such as nocturnal symptoms and extraintestinal manifestations, and does not consider endoscopic severity.

As endoscopic mucosal response and remission have been recognized as treatment targets and can predict future relapses, need for hospitalization, and surgery, it is essential to include endoscopic severity assessment in the diagnosis and management of UC.[7,8] The Mayo endoscopic score is frequently used in clinical trials and is simple to use in clinical practice, ranging from 0 for normal or inactive disease to 3 for severely active disease.[9]

Evaluation of UC during relapses should include assessment of severity of symptoms and potential triggers, including enteric infections (particularly *C. diff*), NSAID use, and recent smoking cessation. Nonadherence to therapy is common in patients with UC and is associated with an increased risk of relapse and cost of care.[10,11] UC is an evolving disease, and the risk of disease extension should be kept in mind in individuals with initially localized disease, particularly with nonresponse to topical treatment. Up to 46% of patients with proctitis and 70% with left-sided colitis may develop extensive colitis on follow-up.[12] It is important to recognize that endoscopic evaluation in individuals with loss of response may reveal patchiness of endoscopic and histologic activity including an appearance of relative rectal sparing with the use of topical treatments.

A comprehensive assessment of severity of UC should include predictors of an aggressive disease course, need for colectomy, and response to therapies. Several prospective cohorts have examined the role of clinical parameters, genetics, and serologic markers in predicting the need for colectomy in UC.[13,14] Extensive colitis, need for systemic steroids, young age at diagnosis, and elevated CRP or ESR are associated with higher rates of colectomy.[13,15] Patients with a previous hospitalization for their UC are also at a higher risk of subsequent colectomy.[16] The yield of genetic or serologic markers in predicting severity and course of UC has been modest at best, and their use cannot be recommended in routine clinical practice based on available data.[17,18]

Acute severe ulcerative colitis (ASUC) is defined as the presence of 6 or more bowel movements daily accompanied by at least 1 systemic sign of toxicity including tachycardia, fever, anemia (hemoglobin < 10.5 g/dL), or elevated inflammatory markers (ESR > 30 mm/hr).[6] In children, a PUCAI ≥ 65 is used to define ASUC.[19] Up to one-quarter of patients with UC may develop ASUC requiring hospitalization[20,21], resulting in colectomy in 40% of patients.[21] Even if the index hospitalization does not result in colectomy, patients requiring hospitalization represent a subgroup at a high risk of subsequent adverse outcomes including need for colectomy.[22]

Patients with ASUC should be admitted to the hospital for inpatient management, intravenous corticosteroid therapy initiation in addition to supportive care with fluids and electrolytes. All patients should have stool testing to rule out CDI and flexible sigmoidoscopy within 72 hours (preferably within 24 hours of admission) to assess endoscopic severity of inflammation and to obtain biopsies to evaluate for cytomegalovirus (CMV) colitis. Assessment for the presence of toxic megacolon should be done on a regular basis during the hospital admission. Response in patients with ASUC should be monitored using stool frequency, rectal bleeding, physical examination, vital signs, and serial CRP measurements. NSAIDs, opioids, and medications with anticholinergic side effects should be avoided in ASUC. In patients failing to adequately respond to medical therapy by 3–5 days or with suspected toxicity, rescue therapies should be considered and a surgical consultation should be obtained. Toxic megacolon, colonic perforation, severe refractory hemorrhage, and refractoriness to medical therapy are indications for surgery in patients with ASUC. In other patients, rescue therapy with Infliximab and cyclosporine may be considered.[23]

This present study aims at studying the profile of hospitalized patients with acute severe ulcerative colitis and access the outcome in these patients.

AIM AND OBJECTIVES

To study the clinical profile and outcome of patients with acute severe ulcerative colitis presenting to a tertiary care center.

REVIEW OF LITERATURE

UC is a chronic inflammatory bowel disease with peak onset in early adulthood.[3] Untreated, the natural history of the disease is one of relapsing and remitting mucosal inflammation. Based on population-based cohort studies, the majority of patients with UC have a mild to moderate course, generally most active at diagnosis and then in varying periods of remission or mild activity. Approximately 15% patients may experience an aggressive course, and 20% of these patients may require hospitalization for severe disease activity.[3,24] The 5- and 10-year cumulative risk of colectomy is 10%–15%, primarily limited to patients with moderate to severe disease activity; a subset of hospitalized patients with acute severe ulcerative colitis (ASUC) have short-term colectomy rates of 25%–30%.[24] The UK National IBD audit reported that despite improvements in quality standards, and improving outcomes for patients with ASUC, there remains considerable morbidity and 1% mortality associated with it.[25] Predictors of an aggressive disease course and colectomy are the following: young age at diagnosis (<40 years old), extensive disease, severe endoscopic activity (presence of large and/or deep ulcers), presence of extra-intestinal manifestations, early need for corticosteroids, and elevated inflammatory markers.[26]

ASUC is a medical emergency and a potentially life-threatening condition that requires prompt recognition and early initiation of treatment.

Definition- Acute severe colitis or (ASUC) is defined by the modified Truelove and Wits criteria that combine presence of bloody stools ≥6 times a day with symptoms of systemic toxicity such as temperature ≥37.8 C, haemoglobin < 10.5 g/dL, erythrocyte sedimentation rate <30 mm/h and/or a pulse rate of ≥90 bpm.[6]

Clinical and Demographic Characteristics- In a systematic review of patients with ulcerative colitis (UC) by Dinesen et al to examine the prevalence and long-term outcomes of acute severe ulcerative colitis

(ASC), there was slight male preponderance (54%) with median age of 35.8 years at diagnosis. Total 35 (19%) out of 186 patients had family history of IBD. Out of these, family history of CD and UC was seen in 10 and 25 patients respectively. Out of 186 patients admitted with ASUC for intensive treatment, the first attack occurred at presentation in 34%, within 1 year of diagnosis in 24% (cumulative total 54%), and 18% within 1–5 years of diagnosis; 28% presented for the first time more than 5 years after diagnosis.[21]

In a study by Jain et al in a North Indian cohort of 1731 patients with ulcerative colitis, 179(10%) had an index episode of ASUC. The mean age at index ASC was 35+12 years, 53% were male, 12% had index presentation of UC as ASUC, 65% had E3 disease, 63% had at least one course of prior steroid use and 18% had prior immunomodulator use.[27]

Possible precipitants of ASUC

Infection: Gastrointestinal infections, particularly bacterial and viral infections, can trigger exacerbations of ulcerative colitis and contribute to the development of ASUC.[28]

Medications: Certain medications, such as nonsteroidal anti-inflammatory drugs (NSAIDs), antibiotics, and oral contraceptives, have been associated with worsening of ulcerative colitis symptoms and the development of ASUC.[29]

Psychological Stress: Psychological stress, including life events, work-related stress, and emotional distress, can contribute to disease flares in ulcerative colitis patients, including the development of ASUC.[30]

CAM use and Non-adherence to treatment- CAM use is very common among patients with IBD and spans an array of therapies, including herbal remedies, probiotics, and cognitive-physical (mind-body) practices. It is important for gastroenterologists to ask all patients about CAM use. Side effects of the CAM of interest should be reviewed. Ultimately, the goal should be to recognize CAM as having a potential supplemental role—but

not an alternative one—to the conventional armamentarium for the treatment of IBD.[31]

In a systematic review on factors associated with non-adherence to oral medication for inflammatory bowel disease, Jackson et al observed that non-adherence rates ranged from 7 to 72%, with most studies reporting that 30-45% of patients were non-adherent. Demographic, clinical, and treatment variables were not consistently associated with non-adherence. Psychological distress, patients' beliefs about medications, and doctor-patient discordance were associated with non-adherence.[32] Perry et al in a study concluded that medication non-adherence was associated with significantly increased disability in IBD.[33]

Smoking: Although smoking has been linked to a decreased risk of developing ulcerative colitis, it is associated with an increased risk of developing severe disease and ASUC in individuals who already have ulcerative colitis. Smoking cessation is therefore recommended to minimize the risk of ASUC.[34]

Initial evaluation and management- On admission, a full blood count, urea, electrolytes (including serum magnesium), creatinine, CRP, erythrocyte sedimentation rate, liver chemistry, a lipid profile, abdominal radiograph and stool tests for culture, microscopy and sensitivity along with Clostridium difficile testing should be arranged. The differential diagnosis of diarrhoea with bleeding should be considered. In anticipation for the need for medical rescue therapy with either infliximab (IFX) or ciclosporin, additional tests should be arranged and include TB screening (interferon gamma release assay and chest radiograph), hepatitis B serology (HbsAg, HbcAb), thiopurine methyltransferase activity (if not known previously), cytomegalovirus (CMV) IgG and IgM, HIV and varicella zoster serology.[35,36]

Most patients will need intravenous fluids with correction of electrolyte imbalance; in particular, serum potassium as hypokalaemia can predispose to colonic dilatation. Nutritional assessment and optimisation of

nutritional status under the supervision of an expert dietician is important for successful outcomes. There is no proven advantage to the routine use of bowel rest or parenteral nutrition; and enteral nutrition is associated with lower complications as compared with parenteral nutrition.[37,38] Nutritional deficiencies should be corrected. Oral iron therapy is probably best avoided, with anecdotal reports suggesting that it can aggravate mucosal inflammation through oxidative stress from oxygen free radicals, the 'Fenton' reaction.[39] Blood transfusion may be considered on a case-to-case basis if absolutely necessary.

Abdominal radiographs may provide vital information. Features suggestive of severe colitis on plain abdominal films include a thickened colonic wall, loss of haustrations, and mucosal islands (edematous mucosa surrounded by ulcerations). Mucosal islands (or 'thumb printing'), when seen, is a predictor of failure of medical treatment. In one study, the presence of 3 or more dilated, gas-filled small bowel loops indicated a high likelihood of nonresponse to medical therapy and need for colectomy.[40] The presence of faecal residue is consistent with uninflamed or normal colonic mucosa. Measurement of the transverse colonic and caecal diameter (diameter >5.5 cm) supports the presence of colonic dilatation and impending toxic dilatation. An erect chest radiograph or a lateral decubitus abdominal film may reveal colonic perforation.

There are several goals of endoscopic evaluation in patients with ASUC, namely, to establish the severity of inflammation, to confirm the diagnosis (in the setting of diagnostic uncertainty), and to obtain biopsies to diagnose CMV colitis. As a complete colonoscopy in patients with severe inflammation may be associated with higher rates of colonic dilation and perforation, a carefully performed flexible sigmoidoscopy with minimal insufflation by an experienced operator is sufficient for most patients. Although there are no standardized endoscopic activity scores specific to ASUC, endoscopic findings of deep ulcerations correlate with failure of corticosteroid therapy and need for rescue therapy or colectomy. In a

cohort of 89 patients hospitalized with ASUC, the UCEIS was higher in patients requiring rescue therapy or colectomy (median 6) than in those who did not (median 5, $P < 0.005$). A UCEIS score of 5 or greater was associated with a 50% likelihood of rescue therapy and 33% rate of colectomy compared with 27% and 9%, respectively, in those with a score of ≤4. [41]

Opportunistic infections

In a study on the “Role of infectious agents in exacerbations of ulcerative colitis in India” by Kochhar et al, 50 patients with idiopathic ulcerative colitis-25 with acute exacerbation of the disease (Group I) and 25 in quiescent phase (Group II) -were studied. None of the patients had a history of recent exposure to antimicrobial drugs or hospitalization. Evidence of infection with protozoal and bacterial agents and/or presence of Clostridium difficile toxin was demonstrated in eight (32%) patients in group I and one (4%) patient in group II (group I vs. group II, $p < 0.05$; chi 2 test with Yate's correction). In five of the six patients with demonstrable Clostridium difficile toxin in the stool, one patient with Entamoeba trophozoites, and another with Salmonella infection, the exacerbation responded clinically and endoscopically to specific antimicrobial therapy. Another two patients who had Entamoeba histolytica cysts in the stool had no change in their clinical status with metronidazole. It was concluded that infectious agents are responsible for some of the exacerbations in patients of ulcerative colitis in a tropical country like India, where careful microbiologic examination is in order in every acute exacerbation of this disease. This contrasts with the findings in developed countries.[42]

Clostridioides difficile Infection- Infectious causes of colitis should be ruled out by stool microscopy and bacterial culture, ELISA or PCR, in particular C.difficile infection. Pseudomembranous colitis is a potential manifestation of C. difficile infection that confers an additional risk of colectomy and mortality.[43] Various tests are available for the diagnosis of CDI in ASUC, the most common ones being ELISA against C. diff toxins A + B and

nucleic acid amplification tests such as PCR.[44] The latter tests are more sensitive, but emerging evidence suggests that they may result in false-positive results, particularly in patients without documented diarrhea.[44] In 1 series, up to 47% of hospitalizations for UC were associated with CDI.[45] Although other cohorts have reported a lower frequency, patients with UC and CDI have a 4-fold increase in mortality, longer hospital stays, and higher rate of colectomy, emergency department visits, therapy escalation, and hospitalizations up to 1 year after the index episode.[45-48] Although controlled trial data are limited, emerging evidence suggests a higher failure rate with metronidazole, suggesting that oral vancomycin should be the first-line agent for treatment of CDI in the hospitalized patient with ASUC.[44,49]

CMV colitis may affect up to one-third of patients with ASUC refractory to corticosteroid therapy.[50,51] Risk factors for CMV include medically refractory disease, treatment with corticosteroids (less consistently immunomodulators and biologics), and presence of endoscopic ulceration.[52] Endoscopically, CMV has a predisposition for actively inflamed tissues; biopsies from the base of the ulcer have the greatest yield. Histologic evidence of viral cytopathic effect on hematoxylin-eosin has poor sensitivity in identifying CMV disease.[53] Immunohistochemistry staining, rapid viral culture methods, and PCR-based assays are the preferred modalities to diagnose CMV disease.[50,51]

In a study on prevalence, clinical significance and outcome of CMV infection in IBD patients by Kishore et al, 63 patients with IBD (61 ulcerative colitis and 2 Crohn's disease) were evaluated for CMV using serology (IgM antibody, mu-capture ELISA), PCR for CMV DNA in colonic biopsy and histological assessment of haematoxylin and eosin-stained colonic biopsy. Positive result in any test was considered as CMV infection. Various parameters associated with CMV infection were analysed using univariate and multivariate analysis. Ten of 63 (15.8 %) patients (age 36.0 +/- 11.2 years, 31 female) were infected with CMV

(DNA alone in four, IgM antibody alone in two and both in four, inclusion body in one). Patients with CMV infection were more often female (8/10 vs 23/53, P < 0.05), had pancolitis (10/10 vs 33/53, P < 0.05), histological activity (9/10 vs 17/53, P < 0.005) and used azathioprine (5/10 vs 7/53, P = 0.04; Fisher exact test for all). On multivariate analysis, female gender, pancolitis and histological activity were the independent factors associated with infection. Patients with CMV infection more often required surgical treatment for IBD (4/10 vs 4/53, P = 0.01) and had fatal outcome (3/10 vs 0/53, P = 0.003).[54]

EBV Infection- A high prevalence of Epstein-Barr virus (EBV) infection in patients with inflammatory bowel disease (IBD) has been reported in many case reports and studies; thus, the association between EBV and IBD has gained increasing attention. Patients with IBD are at an increased risk of opportunistic EBV infection owing to the common use of immunomodulators. EBV infection in IBD patients can cause various complications, including superimposed viral colitis, which is associated with chronicity, exacerbation, and poor prognosis of refractory IBD, and can induce progression to lymphoproliferative disorders, such as EBV-positive mucocutaneous ulcer (EBV MCU), lymphomatoid granulomatosis (LYG), hemophagocytic lymphohistiocytosis (HLH) and diffuse large B-cell lymphoma (DLBCL). It has been suggested to screen for EBV before initiating immunosuppressive therapy and monitor the status of EBV infection in patients with IBD, especially those who are EBV-seronegative and have a risk of primary EBV infection. Clinicians should also be careful of misdiagnosing IBD and EBV-associated lymphoproliferative diseases due to similarities in both clinical symptoms and endoscopic manifestations. Withdrawal of immunosuppressants has been shown to be an effective strategy to achieve remission of disease at the time of EBV diagnosis, but antiviral therapy remains controversial. Thus, it is important to screen for EBV and monitor the status of EBV infection in patients with IBD, especially those who are EBV-seronegative and have a risk of

primary EBV infection. Clinicians should recognize the presence of EBV infection to make a correct diagnosis as early as possible and avoid misdiagnosis in patients with refractory IBD.[55]

Risk stratification- Prognostic stratification should begin on admission. Greater biological severity on admission, based on Truelove and Witts 'criteria, and more extensive underlying disease have been shown to correlate with increased rates of progression to surgery.[21,56] In particular, UC extending proximal to the splenic flexure has been associated with poorer prognosis and is predictive of steroid-refractory disease.[56] In a systematic review of patients with ulcerative colitis (UC) in Oxford to examine the prevalence and long-term outcomes of acute severe ulcerative colitis (ASC). Out of 1853 patients, 750 met the inclusion criteria. Among them, 24.8% experienced at least one episode of ASC, resulting in 186 admissions. The study found that 12% of all patients underwent colectomy, while 39.8% of patients with ASC episodes required colectomy. The colectomy rate was higher for subsequent admissions compared to the first admission. The severity of the disease upon admission was found to be related to the likelihood of colectomy. Patients with additional Truelove and Witts' criteria had a higher risk of colectomy.[21]

Multiple predictors of severity have been described in patients with ASUC. Among objective clinical features, bloody stool frequency, increased body temperature and tachycardia are good predictors of severity and outcome. An Italian prospective cohort study determined that, on admission, elevation in ESR above 75 mm/h and body temperature>38°C were associated with a 4.6 and 8.8-fold increased risk of colectomy, respectively.[57] Persistence of diarrhoeal symptoms despite intravenous corticosteroids has also been associated with poorer outcomes. In a retrospective study of 166 patients, a stool frequency of more than 12 per day conferred a 55% risk of colectomy. Relative change in stool frequency might also have some prognostic relevance. In a prospective Italian case

series of 67 consecutive admissions with ASUC, a less than 40% reduction in bowel motions after 5 days of steroids has been shown to be predictive of eventual treatment failure, whereas cessation of rectal bleeding was predictive of steroid responsiveness.[57,58]

Biochemical markers- Low serum albumin levels, high serum CRP levels and high concentrations of calprotectin in the faeces are commonly used inflammatory markers that have been associated with the need for colectomy. In a retrospective analysis of 189 patients with ASUC from a Hospital in London UK, >40% of patients with a serum albumin of <30 g/l underwent colectomy, although this finding was not supported by subsequent prospective studies.[59,60] A study of 90 patients from Edinburgh, UK, investigating the discriminative ability of faecal calprotectin as a biomarker for predicting the course of ASUC found that it was markedly elevated in patients requiring colectomy compared to patients who did not, with 97% specificity for a predictive threshold of 1,922µg/g, although the sensitivity was much lower (24%).[61] Finally, high serum CRP concentrations were associated with steroid failure in a cohort of 128 hospitalized children with ASUC.[60]

Composite predictive indices- A number of composite predictive indices have been developed to enable identification of patients who will require rescue therapy after 3–5 days of admission on intravenous steroids. The simplest composite index was based on a case series of 48 consecutive presentations in Oxford, UK, and demonstrated that a stool frequency of >8 or a CRP level of >45 mg/l on day 3 of admission predicted an 85% likelihood of requiring colectomy during that admission.[59] An alternative Scottish index was developed in a retrospective study of 167 admissions for ulcerative colitis and contains items such as stool frequency, albumin concentration n (<30 g/l) and presence of colonic dilatation, with 85% of those with a score of ≥4 undergoing colectomy.[62] Finally, the Swedish fulminant colitis index was derived from a retrospective sample of 97 patients using the same covariates as the Oxford index (stool

frequency per day+0.14xCRPmg/l), also calculated on day 3 of admission, with subsequent validation in a clinical trial.[63,64]

Table 1 -Different parameters used in studies when predicting colectomy in acute severe ulcerative colitis

Study [year of publication]	Type of study	No. of patients	Patient characteristics	Parameters	Colectomy rate [%]
Truelove and Witts [1955][6]	Retrospective	210	ASUC	Body temperature Pulse Stool frequency ESR	24 [includes ileostomy without colectomy]
Meyers *et al*. [1987][65]	Prospective	66	ASUC	 ESR Haemoglobin Stool frequency	21
Travis *et al.* [1996][59]	Prospective	49	ASUC	CRP Stool frequency	31
Lindgren *et al.* [1998][63]	Retrospective	97	ASUC	CRP	34
Benazatto *et al.* [2004][57]	Prospective	67	ASUC	Body temperature Pulse ESR CRP	20
Kumar *et al.* [2004][66]	Prospective	55	ASUC	Hypoalbuminaemia CRP Fibrin degradation product Colonic diameter >5cm	8

Ho *et al*. [2004][62]	Retrospective	167	ASUC	Colonic dilatation Hypoalbuminaemia CRP ESR Platelet count Stool frequency	40
Aceituno *et al.* [2007][67]	Retrospective	72	ASUC	CRP Ho index	20
Lees *et al*. [2007][68]	Retrospective	39	ASUC Rescue therapy with infliximab	Albumin	34
Ho *et al.* [2009][69]	Prospective	90	ASUC	Faecal calprotectin Albumin CRP	31
Turner *et al*., a [2010][60]	Prospective	128	ASUC in children	Stool frequency Blood in stool CRP Faecal calprotectin	11
Beswick *et al*. [2017][70]	Prospective	24	ASUC following first dose of IFX rescue therapy	Serum IFX Faecal IFX Faecal calprotectin	6
Grant *et al.* [2020][71]	Retrospective	235	ASUC and also those not meeting Truelove and Witts requiring admission for intravenous steroids	CRP Albumin Endoscopic [Mayo]	18

Recent studies, however, have questioned the clinical applicability of some of these indices. In a follow-up study between 2013 and 2017, Moore et al investigated the accuracy of the Oxford criteria in the current therapeutic setting. Of the 80 patients admitted with ASUC, 33 fulfilled the Oxford criteria of which only 12 (36%) eventually required a colectomy during the same admission.[72]

Combining low albumin levels (50 mg/ L) and a severe score on endoscopic evaluation (the so-called ACE-index) predicted failure to corticosteroids in 78% of cases in a large retrospective study including 235 ASUC patients.[71]

Clinical assessments- Patients should have a daily (or more frequent) clinical assessment which should include physical examination, assessment of haemodynamic status, stool charts, blood tests as outlined above and abdominal radiographs. Commencement of intravenous corticosteroids notwithstanding, assessment of these parameters provides valuable metrics of clinical response and the need for 'rescue therapy'. Acknowledging that successful outcomes for ASUC hinge on multidisciplinary decisions, colorectal surgeons should be consulted early in the course of admission, should medical treatment fail or if surgery may be more appropriate.

Management-

Thromboprophylaxis- Patients with ASUC are at high risk of venous thromboembolism and patients with IBD have twofold to threefold higher risk of deep venous thrombosis than patients without IBD. Compression stockings and subcutaneous prophylactic low molecular weight heparin should be prescribed.[73-75] Thromboprophylaxis does not precipitate or exacerbate colonic bleeding.[76]

Aminosalicylates, antidiarrheals and anticholinergics- There is no definite evidence for continuation of 5-ASA therapy during acute exacerbation of UC and most clinicians would stop 5-ASA therapy avoiding the risk of idiosyncratic diarrhoea from 5-ASA therapy confounding response to

intravenous corticosteroids.[58] Antidiarrheal and anticholinergic agents and opiates should be avoided, as they may prove harmful by decreasing colonic motility and increasing the risk of colonic dilatation and toxic megacolon.[77]

Corticosteroid therapy- Systemic IVCS are the main stay of treatment of ASUC. Their efficacy was first established in an open-label series, in which 49 patients hospitalized with severe colitis were administered prednisolone 60 mg/day in divided doses along with topical hydrocortisone enemas. At 5 days, 73% of patients were in remission, and only 18% reported no improvement or worsening of symptoms. On long-term follow-up, 47% of patients achieving remission were able to maintain their clinical status, and only 18% required subsequent surgery.[78] In a systematic review of 32 studies that included 1,948 adults receiving IVCS therapy, the mean response rate was 67%.[79] Just under one-third of patients (27%) underwent colectomy during the index hospitalization. Meta-regression revealed no benefit to a dose higher than 60 mg of methylprednisolone.

Ciclosporin- Lichtiger et al in his study demonstrated the efficacy of ciclosporin in acute steroid-refractory UC. 9 out of 11 patients with steroid-refractory UC who received ciclosporin (4 mg/kg) as a continuous intravenous infusion improved, whereas all 9 patients who received placebo showed no improvement.[80] 3 of 11 and 4 of 9 patients underwent colectomy in the ciclosporin and placebo groups, respectively. Van Assche and colleagues in a randomised controlled trial (RCT) compared 4 mg/kg with 2 mg/kg intravenous ciclosporin and showed equal efficacy for the two treatment groups in treating severe steroid-refractory UC. Response rates at day 8 were similar in the two groups at 82% and 83%, respectively, and there was no difference in short-term colectomy rates.[81]

Infliximab- IFX is a chimeric IgG1 monoclonal antibody that specifically targets free and membrane-bound TNF-α. The efficacy of infliximab in the treatment of patients with ASUC has been demonstrated in small clinical trials and several observational case series. In 1 pilot study, 4 of 8 patients

who received infliximab had clinical response by 2 weeks compared with none of the patients who were administered placebo.[82] Infliximab was also associated with biochemical response with improvement in circulating inflammatory markers. In a pivotal RCT, 45 patients not responding to 4 days of corticosteroid therapy were randomized to a single infusion of infliximab 5 mg/ kg or placebo. Among 24 patients who received infliximab, only 7 patients required a colectomy by 3 months compared with 14/21 patients receiving placebo (P-value 0.017).[64] Long-term follow up of this trial revealed continued benefit at 3 years.[83] Prospective observational series confirmed the short-term efficacy of infliximab therapy in ASUC.[84,85] In a long-term follow-up study of 211 patients from Sweden, the colectomy-free survival rates after infliximab rescue therapy at 3, 12, 36, and 60 months were 71%, 64%, 59%, and 53%, respectively, with over half the patients achieving steroid-free remission by 12 months.[86]

Colectomy- Surgical excision of the colon, proximal rectum and distal rectal mucosa provides a definitive 'cure' for acute colitis, removing inflamed mucosa and eliminating the future risk of recurrence and malignancy. Semi-elective surgery decreases mortality and may improve quality of life, but emergent surgery carries a significant risk of perioperative complications and functional outcomes that may not always be acceptable to all patients.[87-89] Emergency indications for surgery include toxic dilatation, refractory haemorrhage, intestinal perforation or inadequate response to medical therapy. Delaying surgery in patients with worsening symptoms or development of clinical instability can lead to risk of adverse outcomes including death.[88,90] This underpins the importance of contingency planning with an 'exit strategy' in steroid-refractory patients by day 5 of admission, a decision which should be taken with patients involving gastrointestinal surgeon and a stoma therapist. The policy of early colectomy, within 7 days, in patients with ASUC who fail to respond to intensive steroid-based therapy improves perioperative outcomes with significantly low in-hospital mortality and morbidity.[91,92]

Role of antibiotics- Four clinical trials have examined the role of adjuvant antibiotics in hospitalized patients with ASUC. The antibiotics studied included metronidazole[93], tobramycin[94], ciprofloxacin[95], and vancomycin.[96] In each of the studies, there was no difference in the proportion of patients responding to medical therapy or needing surgery. In addition, given the known association between antibiotics and risk of CDI in this population, the use of antibiotics should be restricted to those with suspected extraluminal complications or systemic signs of toxicity.

Mortality and Outcome- Historically, ASUC has been a particularly deadly condition with an in-hospital mortality ranging up to 28% with another 25% of patients dying within the following 10 years.[97] In the 1970s, implementation of the 'Oxford regimen' protocol consisting of early recognition of the severity of colitis, high-dose intravenous corticosteroids for 5–7 days and early deviation to colectomy for patients who did not respond to medical therapy reduced ASUC mortality from 30% to <2%.[33,78] Short-term colectomy rates with this protocol, however, were still at 30%. As emergency colectomies are associated with high morbidity, health-care costs and has a negative impact on the quality of life, attempts were made to reduce the need for colectomy.[98,99] In the eighties, the length of corticosteroid therapy was increased to 10 days but this failed to reduce colectomy rates.[65,100] Rescue protocols using immunosuppressive medication were developed in the nineties and appeared successful on the short term but did not reduce the colectomy rate in the long run.[98] So, despite all the advances in medical IBD therapy, the overall need for colectomy in ASUC still remains relatively unchanged, although mortality rates have decreased significantly. Early Recognition, Close Monitoring and Timely Re-Assessment of ASUC Treatment are Primordial.

There is no consensus to the question of how long time the steroid treatment should continue before alternative therapies should be considered. Inspired by the study by Travis et al, an effort to further improve the predictive capacity, a similar index was constructed.[59,63]

However, it has later been concluded that this type of index, constructed by retrospective observations, basically does not answer the question of optimal timing for colectomy, but might be misleading since patients could be operated because criteria are met, when it might otherwise have been avoided.[101] The observation by Daperno et al. that among patients with severe colitis, there is a proportion of individuals that responds to steroids slowly, is of considerable importance in the search for optimal timing of rescue therapy in the form of colectomy.[102]

A Swedish study involved a population-based cohort of 330 newly diagnosed patients with ulcerative colitis. Among this group, 14.8% experienced their first severe attack during a median observation period of 11.3 years (range 0.09–14.8 years). During the first severe attack, six patients (12.2%) underwent surgery. Among the non-operated patients, 15 subsequent severe attacks occurred, leading to one additional patient eventually requiring surgery. In this study, the median duration of medical treatment before surgery in patients who underwent colectomy was 18 days without any obvious negative consequence. This duration is significantly longer than the previous recommendation of not exceeding five days but is consistent with the experiences reported by others.[103]

A recent report examining the outcomes of emergency admissions for 10,051 patients with ulcerative colitis in England did not find a correlation between the time to colectomy and in-hospital death.[104]

In a Systematic review with meta-analysis on mortality in acute severe ulcerative colitis, six population-based studies with 741 743 patients and 47 referral center-based studies with 2556 patients were included. The pooled 3-month and 12-month mortalities were respectively 0.84% and 1.01%. Advanced age was significantly associated with both 3 month and 12-month mortalities. The pooled 3-month and 12-month mortalities were 0.78% and 0.85% in studies with median age of less than 50 and 2.81% and 4.17% in studies with median age of 50 or more, respectively. After adjustment for age, 3-month and 12-month mortalities did not differ

between population-based and referral centre-based studies. It was concluded that mortality in acute severe ulcerative colitis is approximately 1% and is higher in older patients.[105]

A study examines the long-term outcomes of acute severe colitis (ASC) in a large cohort of patients with ulcerative colitis (UC) in Northern India. Out of 1731 patients with UC, 10% developed ASC, resulting in 247 episodes. The study found that 11% of patients underwent colectomy during the index episode, and during follow-up, an additional 42 patients underwent colectomy, resulting in an overall colectomy rate of 34%. Response at day 7 of hospitalization for ASC was significantly associated with steroid dependence, repeat episodes of ASC, more relapses per year, shorter remission periods, and higher colectomy rates on long-term follow-up. The study emphasizes that response at day 7 is a crucial predictor of long-term outcomes and can guide treatment decisions.[27]

In India, there is a relative lack of comprehensive data on acute severe ulcerative colitis. The limited research and information available make it challenging to determine the exact prevalence, incidence, and risk factors specific to the Indian population. This lack of data may be due to underdiagnosis, limited access to healthcare resources, and a lower overall awareness of the condition.

It is crucial to address this lack of data and conduct further research in India to better understand the prevalence, risk factors, and optimal management strategies for acute severe ulcerative colitis in the Indian context.

MATERIALS AND METHODS

SOURCE OF DATA

Patients presenting with acute severe ulcerative colitis to the gastroenterology department of DMC&H.

METHOD OF COLLECTION OF DATA

Patients presenting with acute severe ulcerative colitis will be enrolled for the study.

Inclusion Criterion:

1. Patients with acute severe ulcerative colitis (defined by Truelove Witts Criteria)
2. Subjects who are willing and able to comply with detailed clinical work up and required investigations with follow-up.
3. Subjects who are willing to provide a written informed consent.
4. Subject must be at least 18 years of age.

Exclusion Criterion:

1. Presence of indeterminate colitis, microscopic colitis, ischemic colitis, infectious colitis, or clinical findings suggestive of Crohn's Disease.
2. Subjects without previous treatment for UC (i.e. treatment-naïve)
3. Subjects displaying clinical signs of fulminant colitis or toxic megacolon
4. Subjects infected with human immunodeficiency virus (HIV) or hepatitis B or C viruses
5. Subjects who have been vaccinated with live or attenuated vaccine within 6 weeks of baseline or scheduled to receive these vaccines during study period or within 6 weeks after last dose of study medication
6. Subjects with malignancies or a history of malignancies, with the exception of adequately treated or excised non-metastatic basal cell or squamous cell cancer of the skin.

7. Subjects with current or recent history of severe, progressive, or uncontrolled renal, hepatic, hematological, gastrointestinal, metabolic, endocrine, pulmonary, cardiac, neurological disease.
8. Pregnant females

Duration of study:

1 year study with 3 months follow-up.

Outcome:

To study the spectrum of acute severe ulcerative colitis in patients presenting to DMC&H

STATISTICAL ANALYSIS

Data were described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases) and relative frequencies (percentages) as appropriate. To determine whether the data were normally distributed, a Kolmogorov-Smirnov test was used. Comparison of quantitative variables between the study groups was done using Student t-test and Mann Whitney *U* test for independent samples for parametric and non-parametric data respectively. For comparing categorical data, Chi square ($\chi 2$) test was performed, and fisher exact test was used when the expected frequency is less than 5. A probability value (*p* value) less than 0.05 was considered statistically significant. All statistical calculations were done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

OBSERVATIONS AND RESULTS

This prospective study was conducted in the Department of Gastroenterology of Dayanand Medical College and Hospital, Ludhiana. 79 consecutive patients of age ≥18 years presenting with acute severe ulcerative colitis (defined by Truelove's and Witt's Criteria) were enrolled for the study after a written informed consent.

Demographic data and clinical characteristics of the disease

(Table 2)

Of the 79 patients with ASUC, a majority of the patients (52%) were young (18-39 years) (figure 1). 41 (50.9%) were males, with median age of 39 (18-79) years (figure 2). Eleven patients had comorbidities like diabetes mellitus (n=7,8.9%), essential hypertension (n=4,5.1%), CAD (n=1,1.3%) and hypothyroidism (n=1, 1.3%) (figure 4). Two patients (2.5%) had history of smoking (figure 3). History of IBD in first degree relatives was noted in 2 (2.5%) patients (both had UC) (figure 5). The median age at diagnosis of UC was 37 (13-78) years. A majority of patients (n=36, 45.6%) had been diagnosed to have UC in the past 1 year, and amongst these, the disease was diagnosed for the first time in 5 (6.3%) patients (figure 7). Previous flares (requiring hospitalization) had been reported in 30 (37.9%) patients [1 flare in 10 (12.7%), 2 in 6 (7.6%), 3 in 6 (7.6%) and multiple flares in 8 (10.1%)] (figure 10). Nearly four-fifth (n=62, 78.5%) of the patients had been previously treated with corticosteroids (figure 8).

Table 2- Demographics and Clinical characteristics of UC

Demographics	**n (%)**
Median Age (Range) at presentation (years) [figure 1]	39 (18-79)
18-39 years n(%)	41 (51.9)
40-59 years n(%)	25 (31.6)
>60 years n(%)	13 (16.5)
Gender (M:F) [figure 2]	41:38
Addictions [figure 3]	
Smoking (%)	2 (2.5)
Comorbidities [figure 4]	
Diabetes mellitus (%)	7 (8.9)
Essential Hypertension (%)	4 (5.1)
Coronary Artery Disease (CAD) (%)	1(1.3)
Hypothyroidism (%)	1 (1.3)
Family history of IBD (UC:CD) [figure 5]	2:0
Clinical characteristics	
Median Age (Range) at diagnosis (years)	37
Disease extent [figure 6]	
E1	2 (2.5)
E2	21 (26.6)

E3	14 (17.7)
E-unknown (at least E2)	42 (53.2)
UCEIS score	5.97 (0.78)
Disease duration (years) [figure 7]	
Index presentation	5 (6.3)
<1 year	31 (39.2)
1-5 years	32 (32)
>5 years	11 (13.9)
History of use of steroids in the past [figure 8]	62 (78.4)
Past history of Infection [figure 9]	
Chicken pox	11 (13.9)
Herpes zoster	2 (2.5)
Recurrent URTI	1 (1.3)
UTI	1 (1.3)
Previous flares [figure 10]	
1	10 (12.7)
2	6 (7.6)
3	6 (7.6)
≥4	8 (10.1)

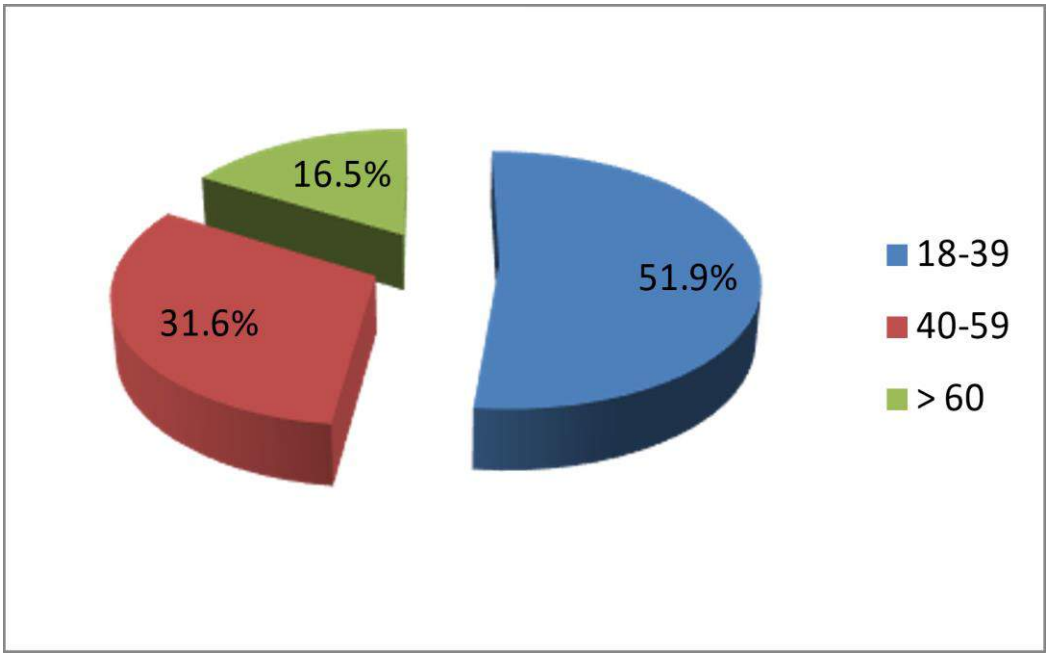


Figure 1: Age wise distribution of patients

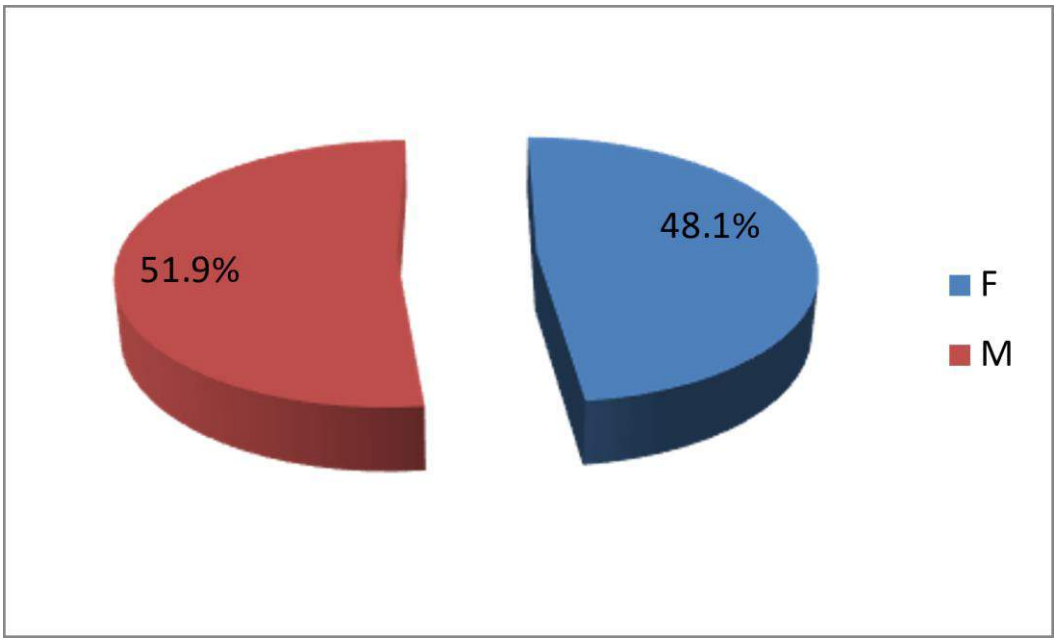


Figure 2: Gender wise distribution of patients

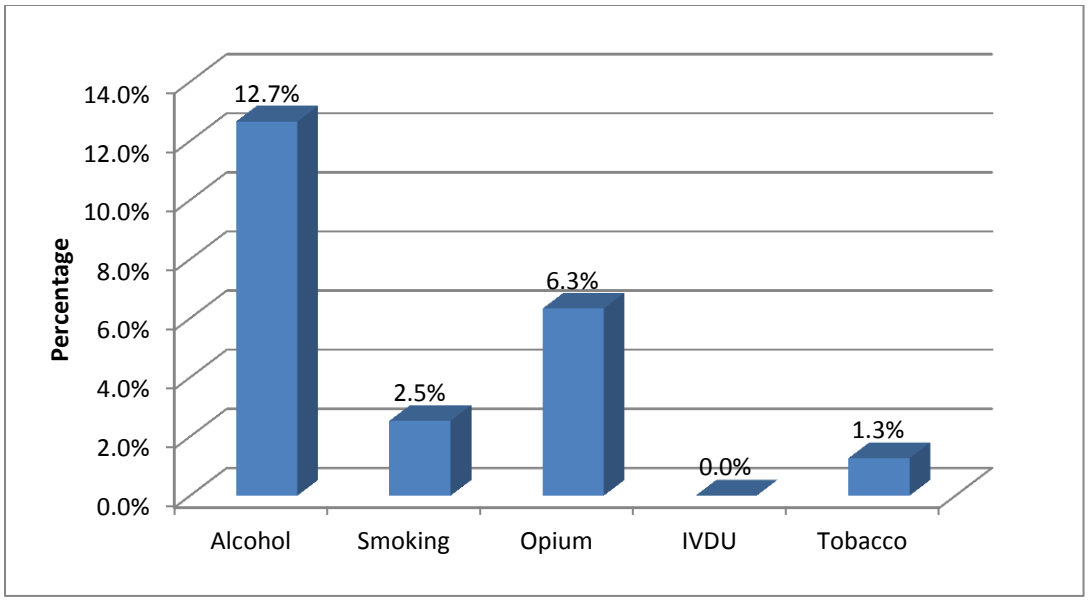


Figure 3: Patients with history of substance abuse

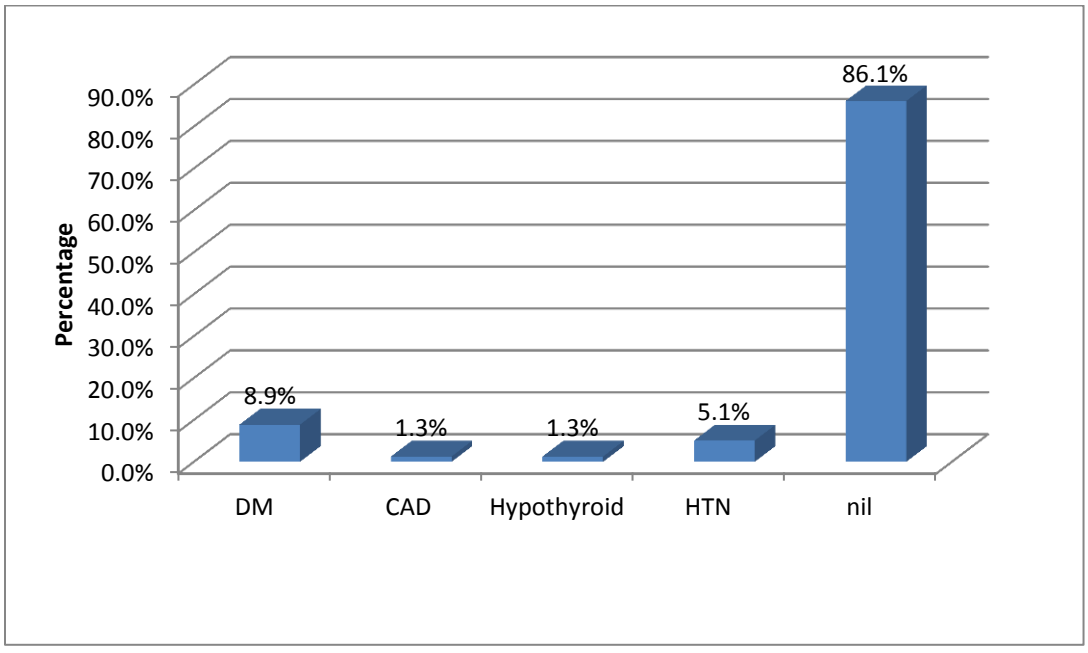


Figure 4: Number of comorbidities seen in patients

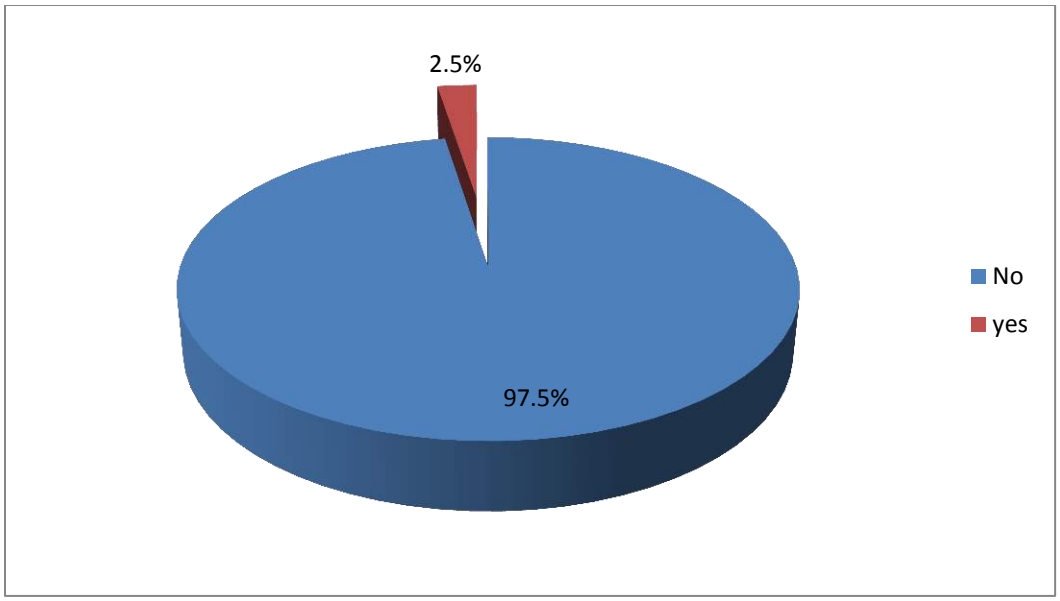


Figure 5: History of UC in first degree relatives

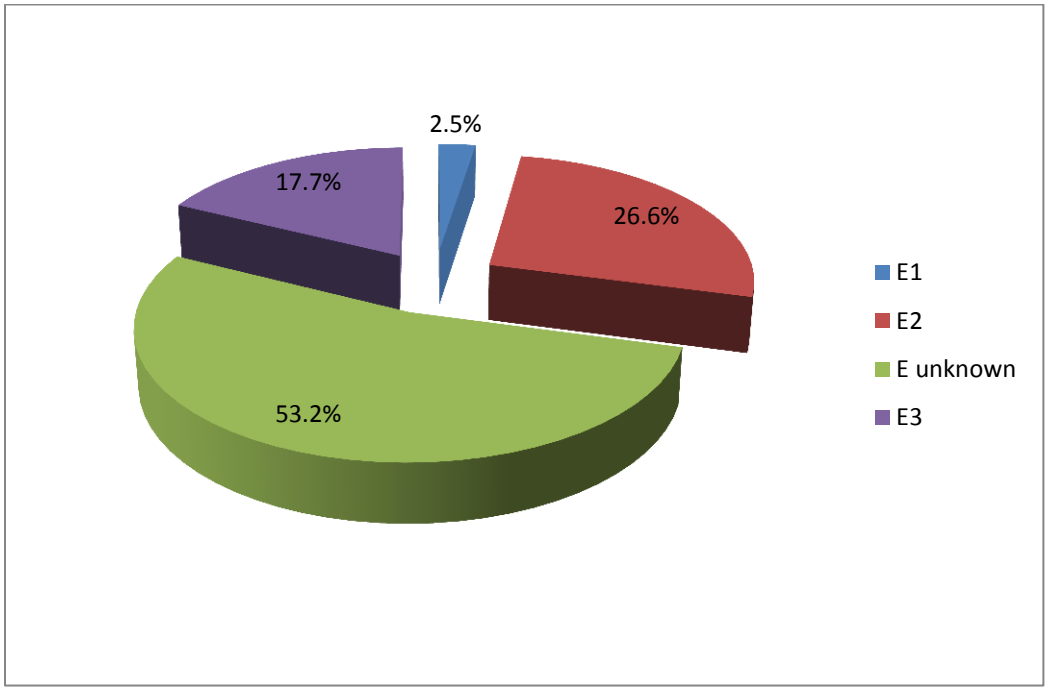


Figure 6: Extent of disease according to the Montreal classification

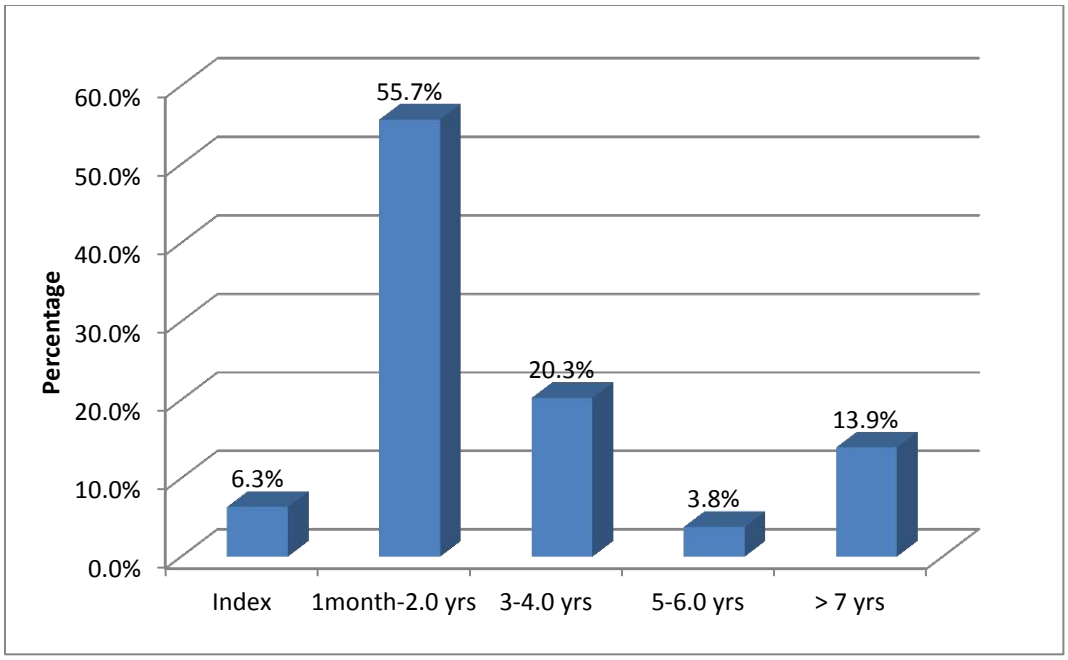


Figure 7: Duration of disease at presentation

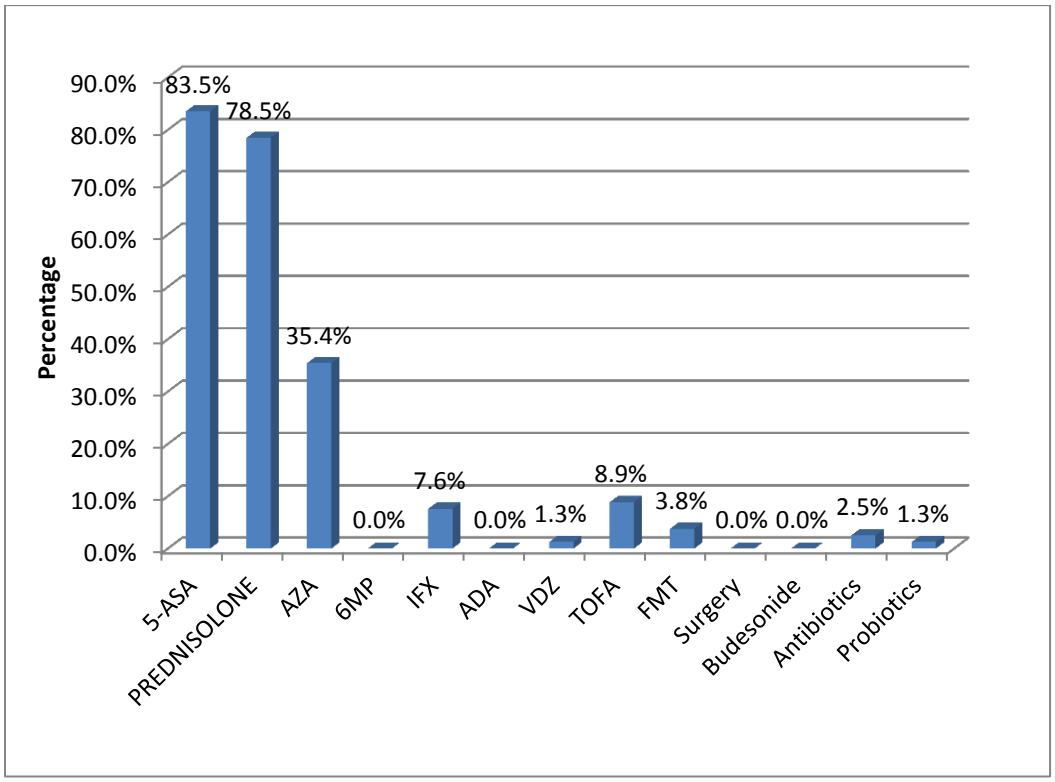


Figure 8: Past history of various treatments received

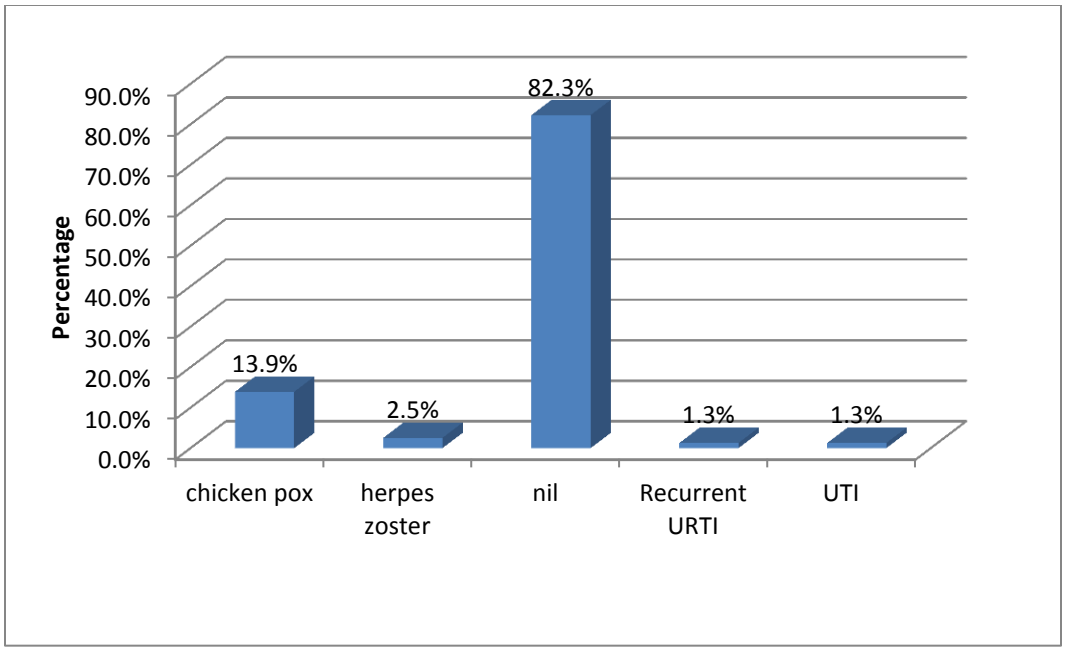


Figure 9: Past history of infections in patients presenting with ASUC

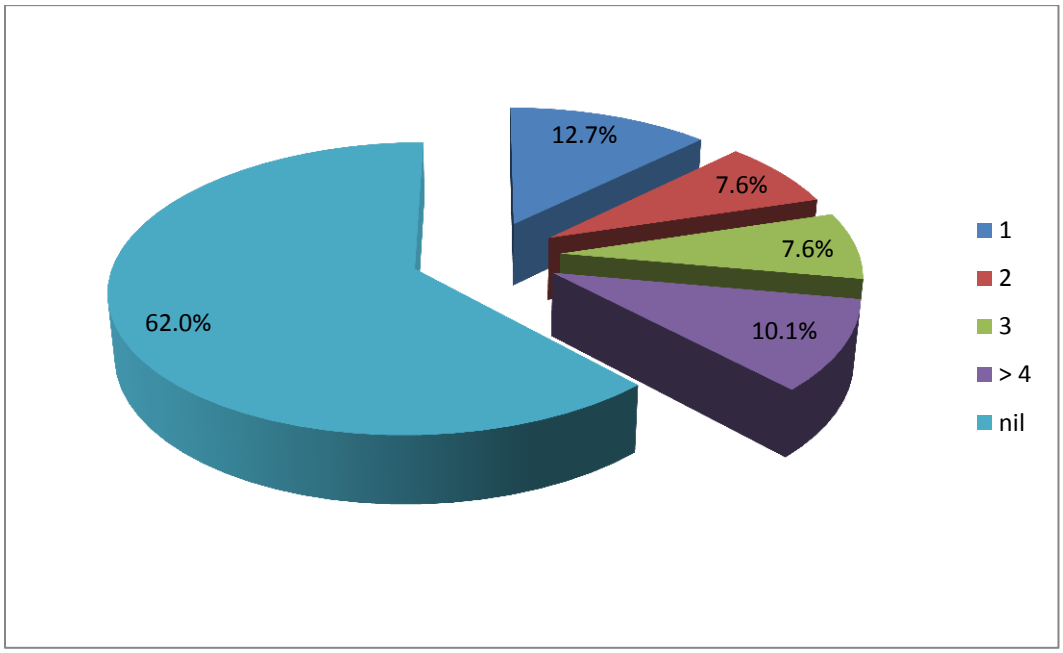


Figure 10: Number of previous flares requiring hospitalization

Characteristics of episode of ASUC *(Table 3 and figure 11, 12 a-d)*

At the time of admission, a majority of patients (n=70, 88.6%) had symptoms for more than 7 days. In addition to ≥6 bloody stools/day; 15 (18.9%) had one, 34 (43%) had two, 29 (36.7%) had three and 1 (1.2%) had four additional TW criteria. All patients were screened for malnutrition at admission. History suggested malnutrition in 49 (59.5%) patients. The mean BMI was 21.2 ± 4.2 kg/m2 and 24 patients (30.4%) were under-weight. Though an equal proportion were overweight or obese (n=25, 31.6%), on nutritional screening a majority of patients were at a high risk of malnutrition (n=64, 81% MIRT ≥3). Nutritional assessment revealed a mean MUAC, TSF thickness of 24.7±3.7 cm and 10.17± 6.9 mm, respectively suggesting malnutrition in 72.15% of the patients. The mean HGS was 19.6±9.8 kg, and a majority of patients (n=65, 82.3%) had sarcopenia. On laboratory testing mean hemoglobin was 9.6± 2.3 g/dl, albumin 3± 1 g/dl and CRP was 65.4± 71.4 mg/L. Five patients had normal CRP despite severe disease (clinically and endoscopically). The mean UCEIS Score was 5.97±0.78, SCCAI (Simple Clinical Colitis Activity Index) was 10.2 ± 2.1 and the total Mayo score was 9.8 ± 1.0 at the time of admission.

Table 3- Characteristics of current episode of ASUC

Duration of symptoms on day of presentation [figure 11]	**n (%)**
1-2 days	1 (1.7)
3-4 days	4 (5.1)
5-6 days	4 (5.1)
≥7 days	70 (88.6)

Number of TW criteria	n (%)
Bloody Stools >6	79 (100)
Temperature>37.8F	3 (3.7)
Tachycardia	58 (73.4)
Hb <10.5	49 (62)
ESR>30	56 (70.8)
SIRS	1 (1.2)
Additional number of TW criteria	
1	15 (18.9)
2	34 (43)
3	29 (36.7)
4	1 (1.2)
Nutritional screening and assessment	
Nutritional screening	
Clinical history s/o malnutrition (Weight loss/nutritional deficiency)	47 (59.5)
NRS 2002 ≥3 [figure 12a]	27 (34.2)
MUST ≥2 [figure 12b]	43 (54.4)
MIRT ≥3 [figure 12c]	64 (81)
Nutritional Assessment	
Height (m) (mean)	163cm
Weight (kg) (mean)	56.7 kg

BMI (mean ±SD) <18.5 18.5-22.9 23-24.9 25	21.2 ±4.2 24 (30.3) 30 (37.9) 13 (16.4) 12 (15.1)
MUAC s/o malnutrition	37 (46.8)
Triceps skin fold thickness s/o malnutrition	57 (72.15)
Sarcopenia assessment	
Hand grip strength <33 kg [figure 12d]	65 (82.3)
Laboratory testing	
Hemoglobin (g/dL) Albumin (g/dL) CRP (mg/L)	9.6 (4.1-15.8) 3 (1.15-4.7) 65.4 (1.3-348)
ENDOSCOPIC FINDINGS	
UCEIS score (mean)	5.97± 0.78
DISEASE SEVERITY	
Total Mayo (mean)	9.8 ± 1.0
SCCAI (mean)	10.2 ± 2.1

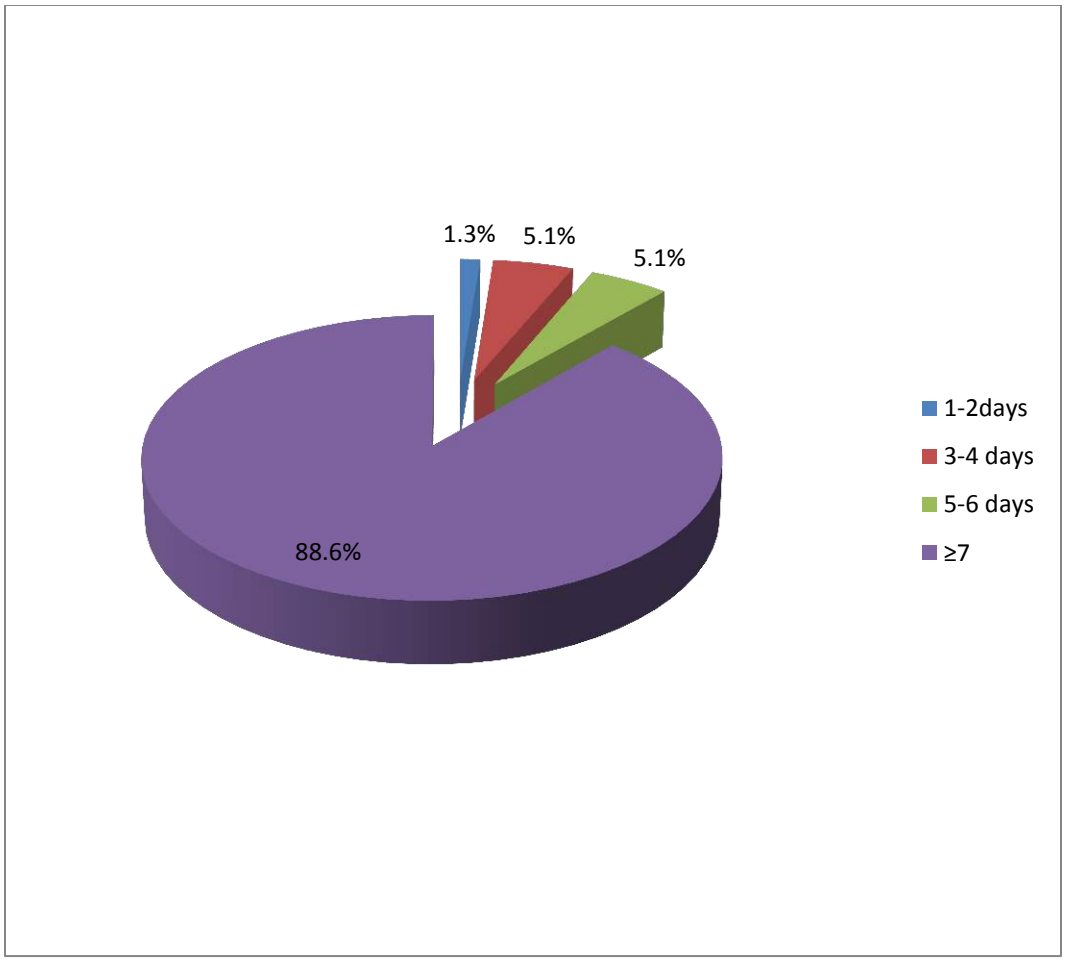
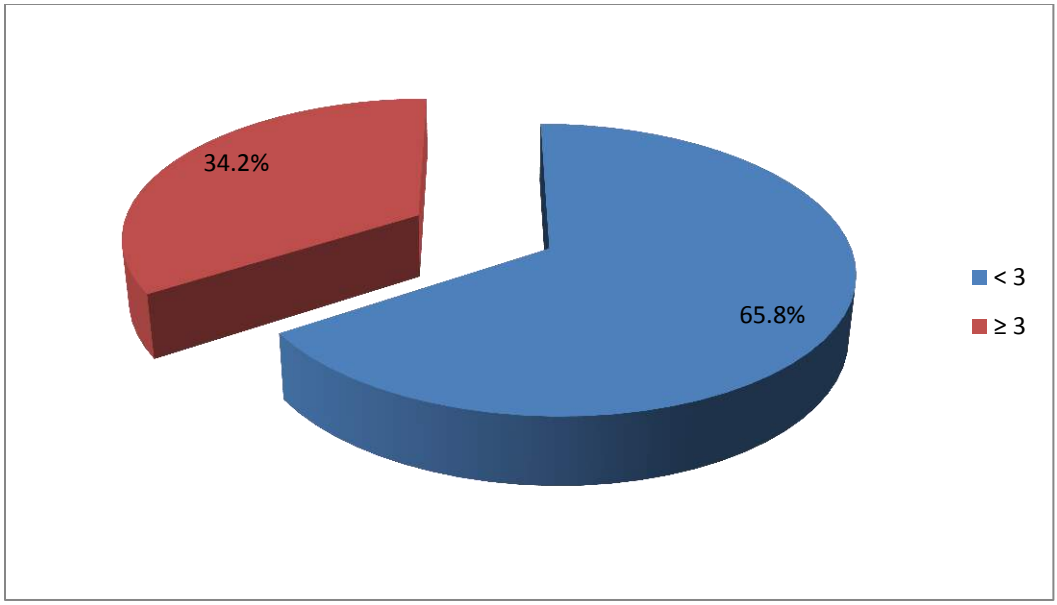


Figure 11: Total duration of symptoms before presentation

Nutritional assessment of patients with ASUC



12a: NRS criteria

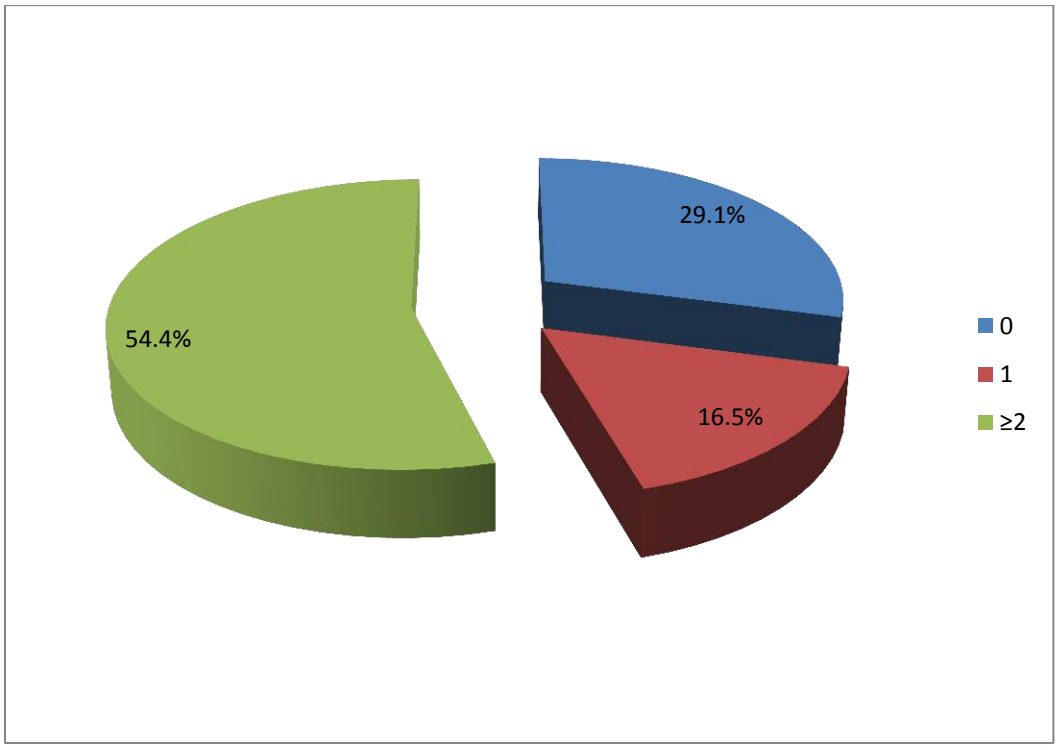


Figure 12b: MUST criteria

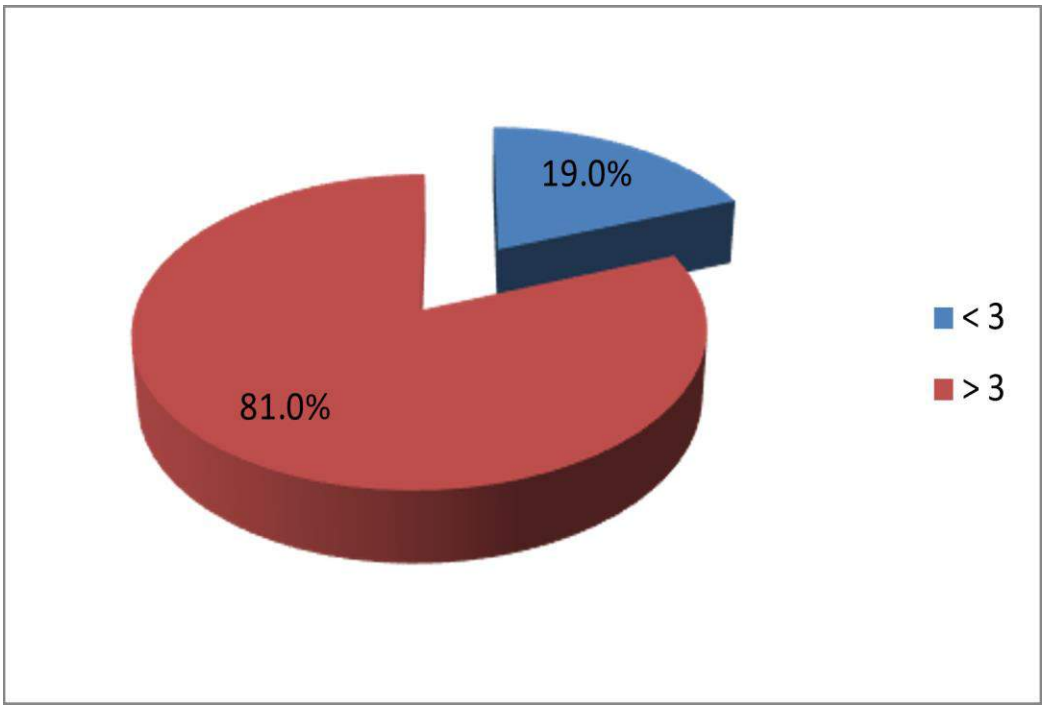


Figure 12c: MIRT criteria

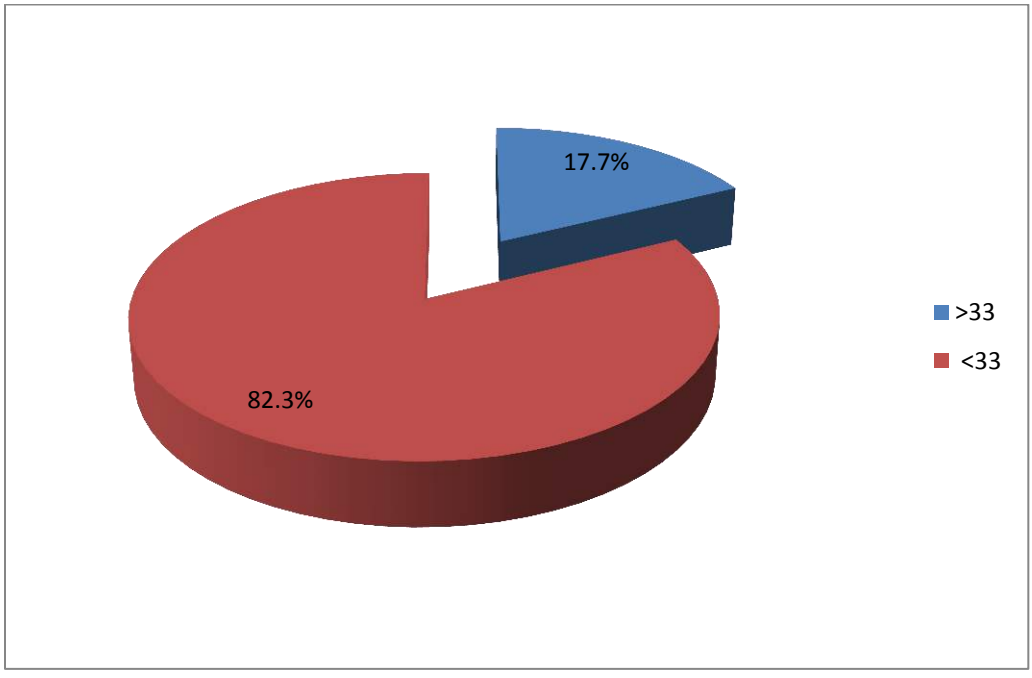


Figure 12d: Hand grip strength

Precipitants of ASUC Flare *(Table 4 and figure 13)*

The possible precipitants of the flare of ASUC are enlisted in table 4. Infective causes included Clostridioides difficile (CDI) (15, 18.9%), Cytomegalovirus (CMV) (n=10,12.6%) and Epstein Barr Virus (EBV) (34, 43%). Other possible precipitating causes were drugs like NSAIDS (11, 13.9%), antibiotics (21, 26.6% {cephalosporins (n=5), fluoroquinolones(n=10), aminoglycosides(n=1), macrolides(n=3), tetracyclines(n=1) and carbapenems(n=1)}) and complementary and alternative medications (CAM); and poor drug compliance.

Table 4- Possible precipitants for disease flare

Enteric Infections	**n (%)**
C difficile	15 (18.9)
CMV	10 (12.6)
EBV	34 (43)
Drugs	
NSAIDS	11 (13.9)
Antibiotics	21 (26.6)
{cephalosporins (n=5), fluoroquinolones(n=10), aminoglycosides(n=1), macrolides(n=3), tetracyclines(n=1) and carbapenems(n=1)})	
Poor drug compliance	23 (29.1)
No Precipitating cause	17 (21.5)

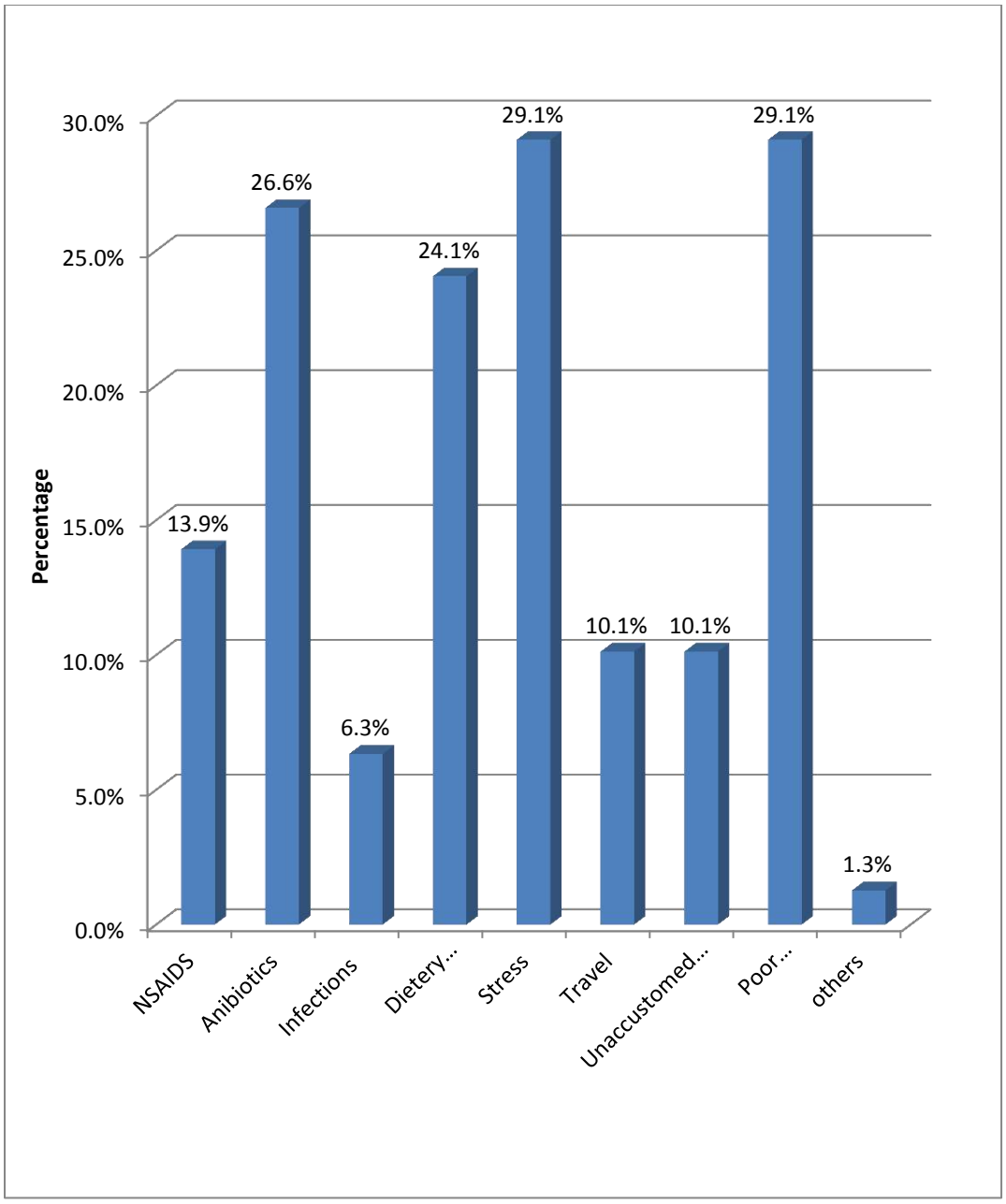


Figure 13: Various precipitating factors for ASUC

Outcomes *(Table 5 and Figure 14 &15 a-h)*

All patients with ASUC were started on IV corticosteroids. Response to therapy was assessed on days 3, 5 and 7. A majority of partial responders and a few non-responders at day 3 and day 5 showed response by day 7. On day 7, complete (early) response was seen in 4 (5%), while non-response to therapy was noted in 8 (10.1%) patients. A majority of the patients (n=67, 84.8%) showed a slow response to therapy, of which 66 (98.5%) could avoid colectomy during the current admission. One patient who showed a partial (slow) response had worsening of symptoms, requiring rescue therapy with infliximab, however she succumbed to her illness. Eight patients (10.1%) had non-response on day 7. Of these, one died on day 6 due to left ventricular dysfunction and cardiogenic shock. Three non-responders underwent surgery, of which 2 died during the hospital stay. Two received infliximab as a salvage therapy but failed to respond. One underwent colectomy and survived beyond day 90. The other was discharged against medical advice after second dose, and died on re-admission due to fulminant sepsis. One patient showed partial but unsatisfactory response and hence was started on vedolizumab. Fifteen patients who had CDI were treated with metronidazole and vancomycin and all of them responded to medical management. The median hospital stay for these patients with CDI was 15 (7-23) days and two patients required ICU care. Patient with CMV infection (n=10) were treated with ganciclovir and all responded to medical management.

There was no significant difference in demographics (age, gender) and disease characteristics (duration of symptoms, disease severity assessed by additional TW criteria) in the responders and non-responders (Table 4). However, the non-responders were more malnourished than the responders, as evident by lower BMI, MUAC, TSFT, HGS and serum albumin levels. CRP levels were also higher in non-responders, suggesting more disease activity at baseline. Though statistically

insignificant, a higher proportion of non-responders had been on oral corticosteroids prior to current admission. Mean hospital stay and surgery/mortality rates were significantly higher in the non-responders.

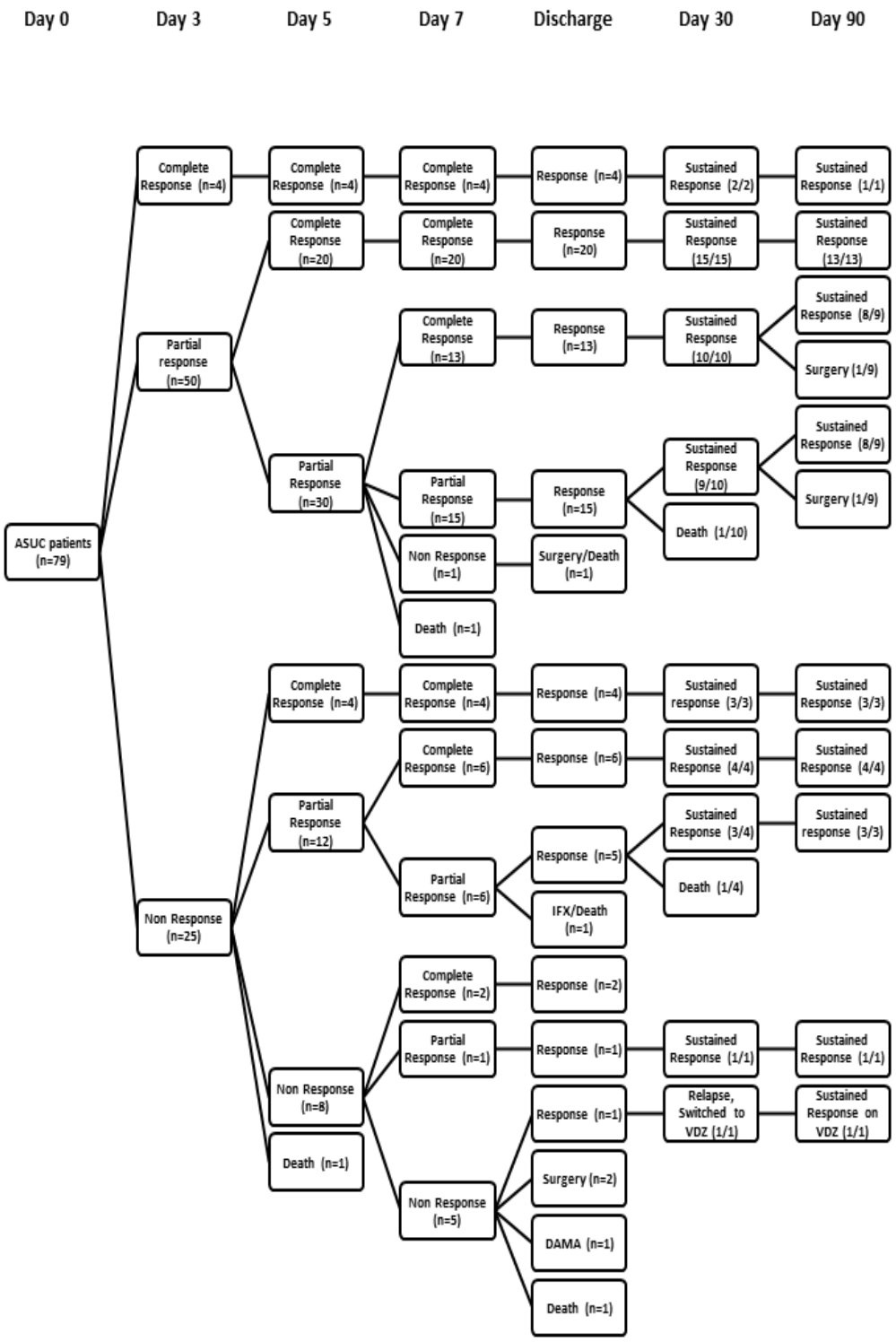


Figure 14 – Outcomes of treatment in patients with ASUC

Table 5: Early vs Slow vs Non Responders make a bar chart for this

Factors (By Travis criteria)	Early Responders (n=4)	Slow Responders (n=67)	Non-responders (n= 8)	P (early vs slow responders)	p-value (responders vs non responders)
Age (Figure 15a)					
18-39 years n (%)	1 (25%)	38 (56.7%)	2 (25%)	0.462	0.155
40-59 years n (%)	2 (50%)	20 (29.8%)	3 (37.5%)		
>60 years n(%)	1 (25%)	9 (13.4%)	3 (37.5%)		
Duration of symptoms on day of presentation (Figure 15b)					
1-2 days	0	1 (1.5%)	0	0.91	0.673
3-4 days	0	3 (4.5%)	1 (12.5%)		
5-6 days	0	4 (5.9%)	0		
≥7 days	4 (100%)	59 (88.05%)	7 (87.5%)		
Additional number of TW criteria (Figure 15c)					
1	1 (25%)	14 (20.9%)	2 (25%)	0.985	0.965
2	2 (50%)	31 (46.3%)	4 (50%)		
3	1 (25%)	21 (31.3%)	2 (25%)		
4	0	1 (1.5%)	0		

Malnutrition at presentation (Figure 15d)					
BMI (<18.5 kg/m2)	1 (25%)	19 (28.4%)	4 (50%)	0.885	0.203
MUAC s/o malnutrition	3 (75%)	31 (46.3%)	5 (62.5%)	0.156	0.433
Triceps skin fold thickness s/o malnutrition	2 (50%)	49 (73.1%)	6 (75%)	0.318	0.849
Hand grip strength <33 kg	3 (75%)	55 (82.1%)	7 (87.5%)	0.722	0.683
Laboratory Testing (Figure 15e)					
Hemoglobin (g/dL)	10.47	9.52	10.01	0.436	0.610
Albumin (g/dL)	3.28	2.94	2.4	0.414	0.069
CRP (mg/L)	25.4	64.8	90.76	0.56	0.293
Infections (Figure 15f)					
CMV	0	9 (13.4%)	1 (12.5%)	0.425	0.988
EBV	0	31 (46.3%)	3 (37.5%)	0.069	0.763
C difficile	0	14 (20.9%)	1 (12.5%)	0.307	0.622

Previous exposure to steroids (Figure 15f)	3 (75%)	52 (77.6%)	7 (87.5%)	0.903	0.512
Mean hospital stay (days) (Figure 15g)	5.75	9.67	15.25	0.098	0.003
Surgery/ Mortality (Figure 15H)	0	3 (4.5%)	6 (75%)	0.665	0.001

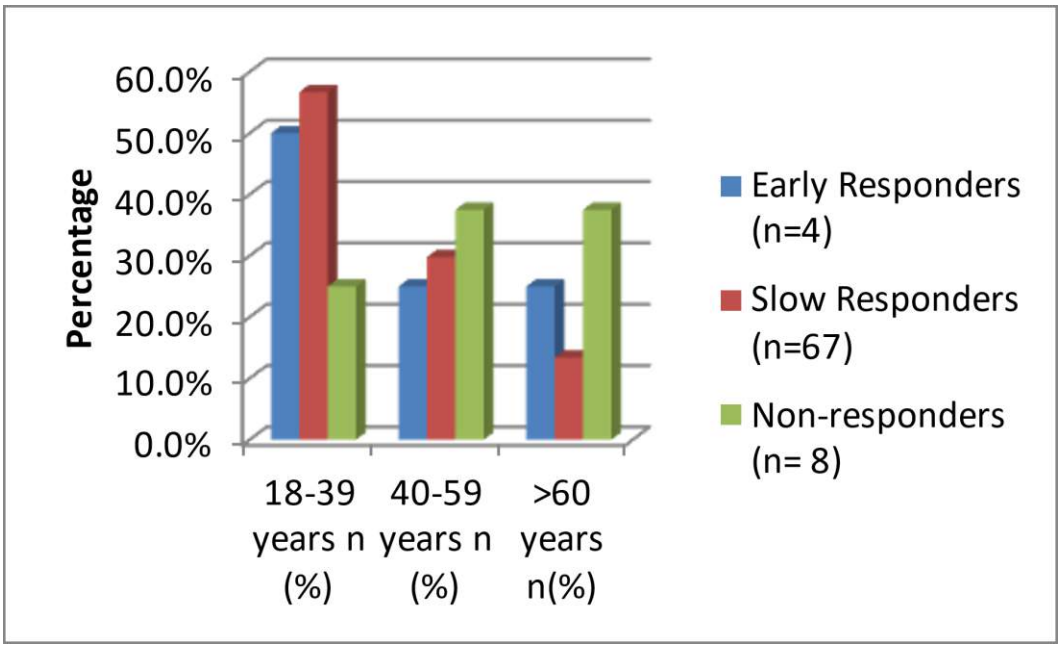


Figure 15a: Age at presentation among early, slow and non-responders

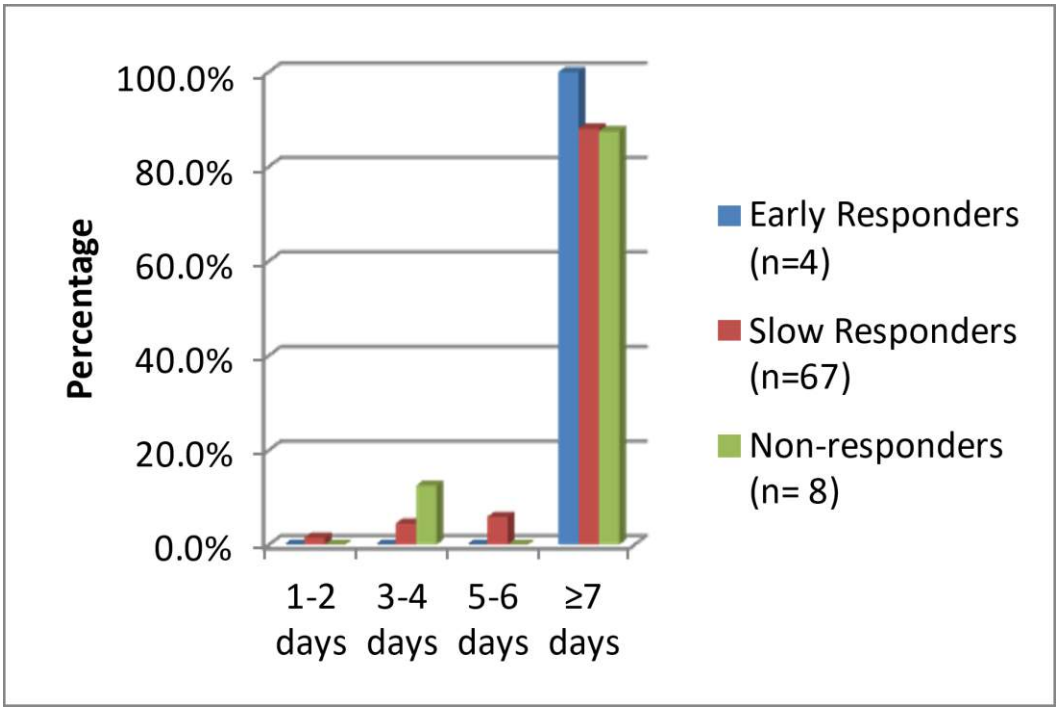


Figure 15 b: Duration of symptoms on day of presentation

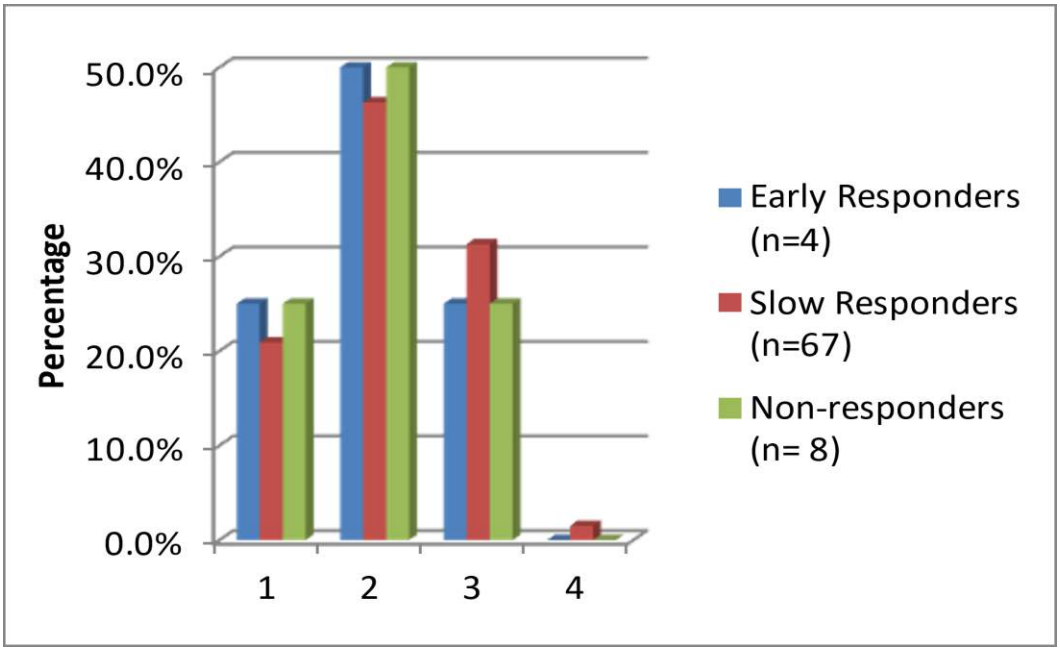


Figure 15c: Additional number of TW criteria

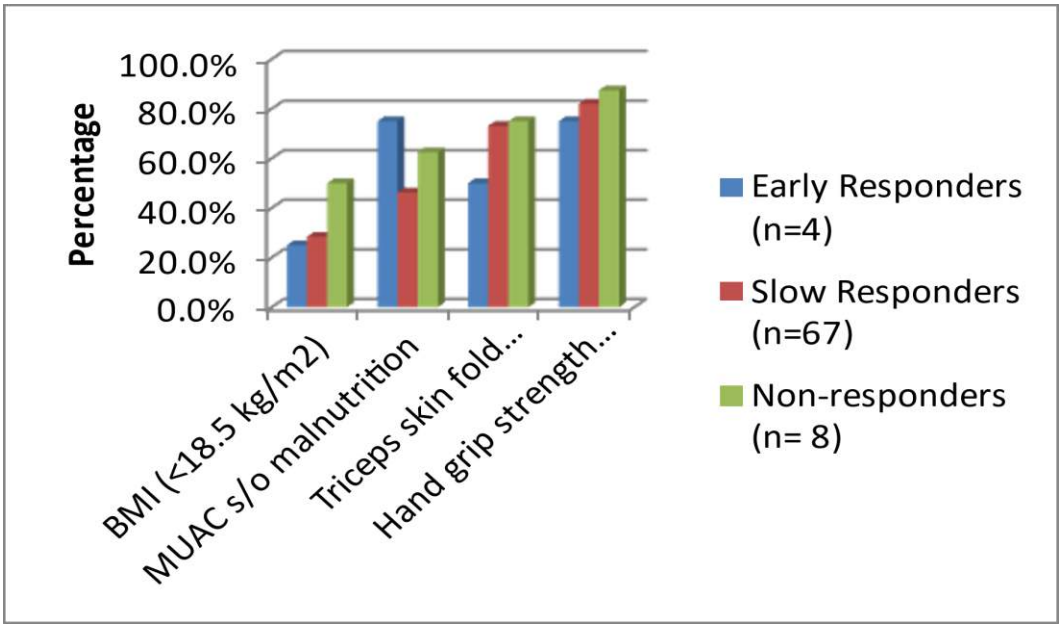


Figure 15d: Malnutrition at presentation

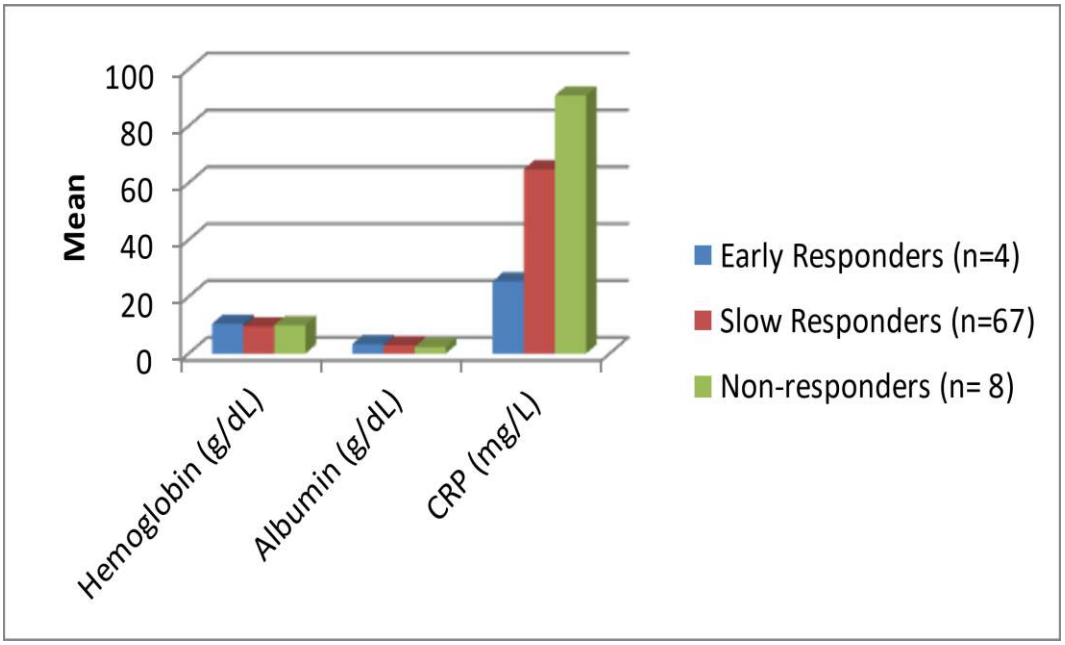


Figure 15e: Laboratory testing: Comparison of Hb, CRP and Albumin

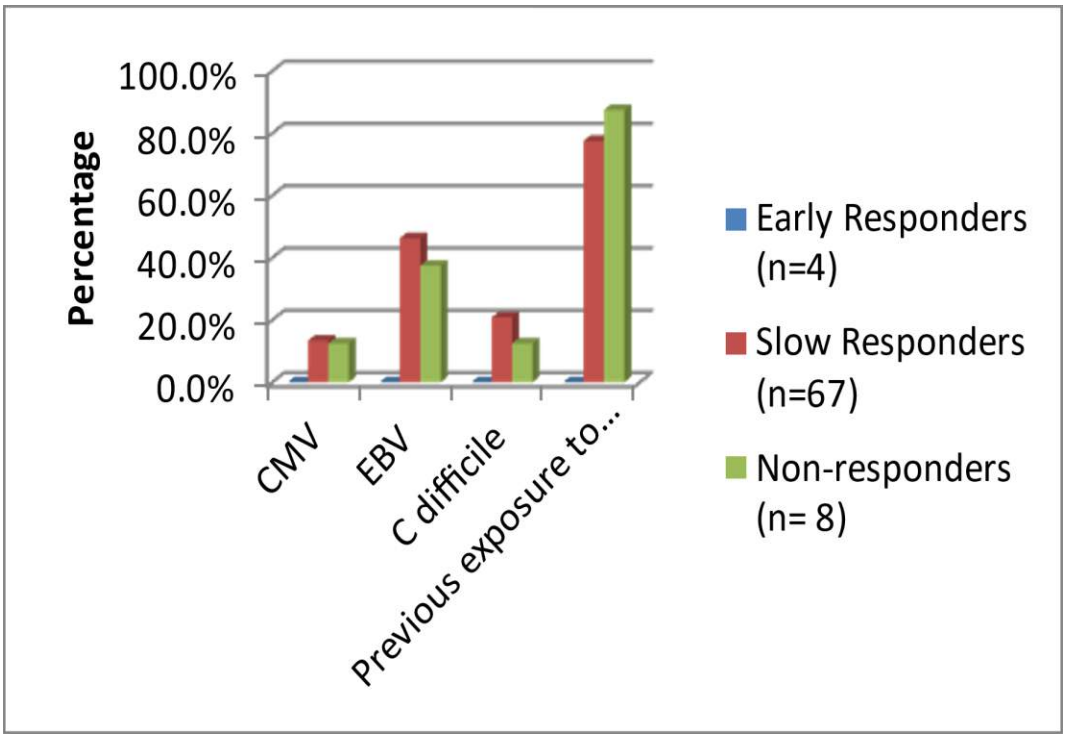


Figure 15f: Infections & Previous exposure to steroids

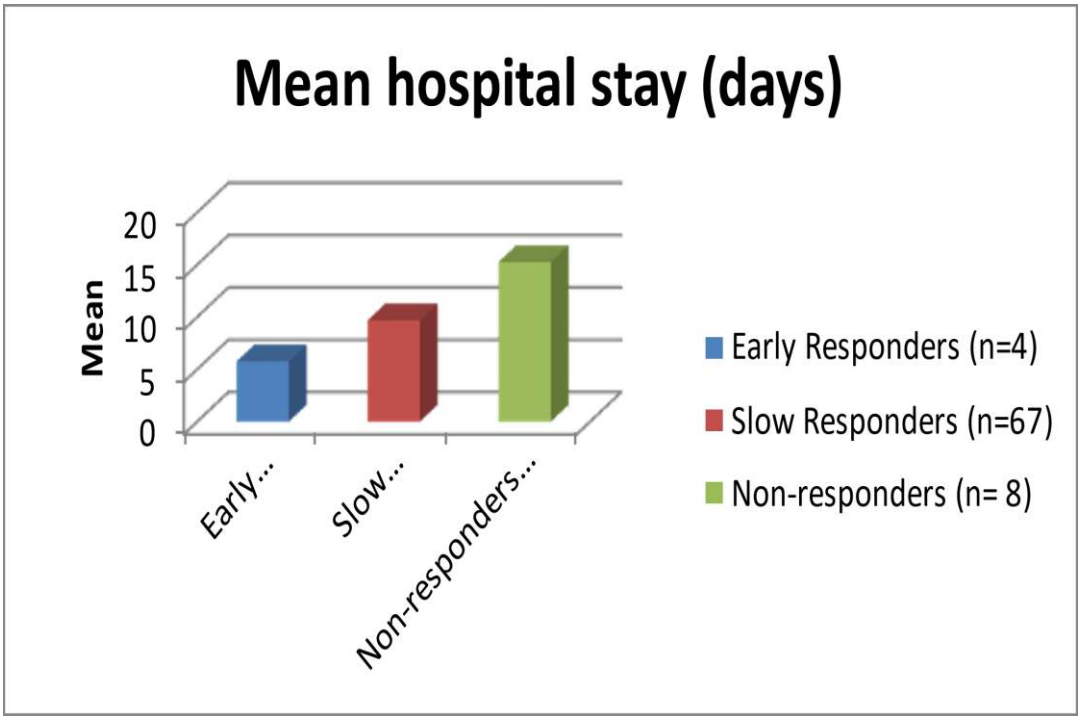


Figure 15g: Comparison of mean hospital stay

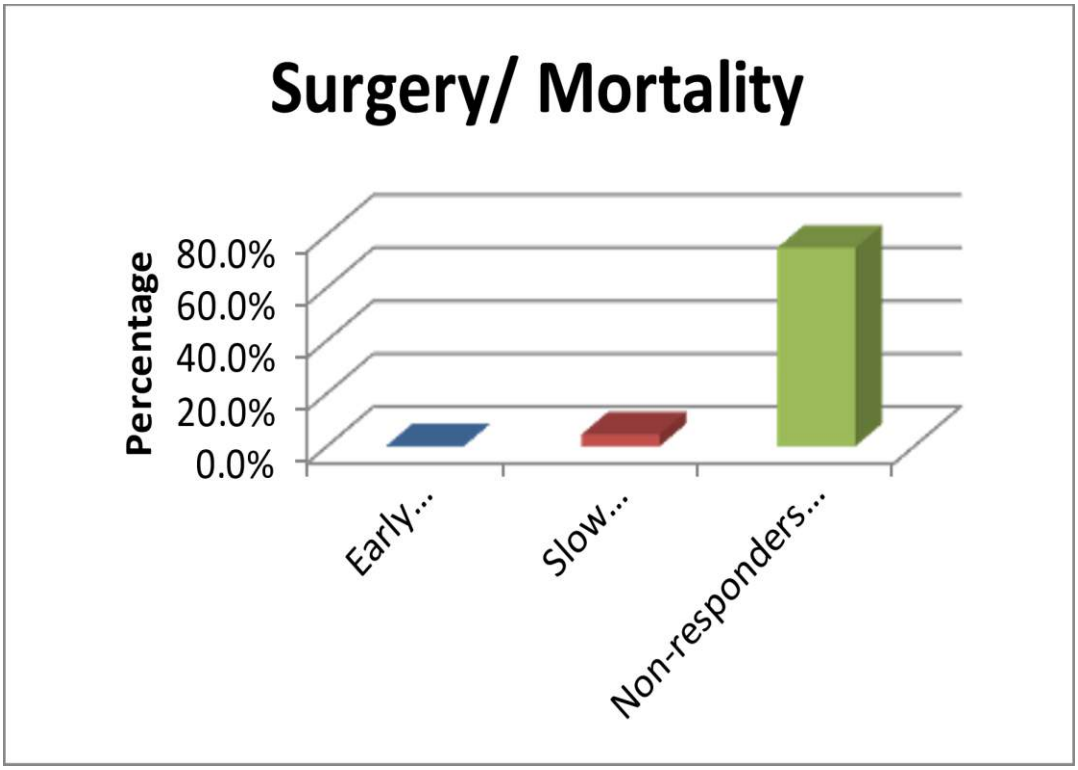


Figure 15h: Comparison of Surgery/Mortality among the 3 groups

DISCUSSION

The present study prospectively analyzed the clinical profile and treatment outcomes in a North Indian cohort of ASUC patients. A majority of patients presenting with ASUC were young and presented within the first year of diagnosis. The disease was severe at presentation (more than 80% patients fulfilled at least 2 additional TW criteria), and 88.6% patients presented late, i.e. after 7 days of onset of symptoms. The common precipitants of acute severe flares included infections (CDI, CMV, EBV), use of other drugs and non-compliance to treatment. A large cohort of 'slow responders' was identified (84.8%), who could be continued on IV corticosteroids beyond day 3 and day 5 of partial or non-response, without adverse clinical outcomes (98.5% colectomy-free survival at discharge). Predictors of non-response to therapy were: age, disease severity and presence of malnutrition at presentation.

More than half of the patients with ASUC were less than 40 years of age (median age 39 years), with slight male preponderance (52% males). This demographic pattern was similar to that reported from Oxford, UK, (median age 35.8 years,54% males) and Italy (median age 38 years, 58% males).[21,106] Forty nine (62%) of the patients had the first attack of acute severe colitis and 38% had previous history of one or more flares. Thirty-six (45.6%) patients presented within the first year of diagnosis, of which 5 (6.3%) presented within first month of diagnosis. In the Oxford cohort, 34% of patients presented with ASUC within a month of diagnosis, while 24% (cumulative total 54%) presented within the first year. These differences could be attributed to delayed presentation of patients in India, where first presentation of bloody diarrhea is usually attributed to an infective cause and evaluation for IBD is usually considered either after non-response to antibiotics, or persistence of symptoms beyond 2 weeks.

At presentation, the disease was severe, as evident by the presence of at least 2 TW criteria in addition to ≥6 bloody stools per day in 64 (81%), high

SCCAI (9.8 ± 1.0) and Mayo scores (10.2 ± 2.1). This was comparable to the disease severity of the Oxford cohort, where 88.7% patients had ≥2 additional TW criteria.[21] A majority of patients (88.6%) had a delayed presentation (≥7 days of onset of symptoms), which was a possible cause for the same.

A significantly greater degree of malnutrition and consequent sarcopenia was noted in patients with ASUC, when compared to the overall UC cohort assessed during the study period (Table 6).[107] Such high rates of malnutrition in our patients with ASUC maybe attributed to a more severe disease at presentation resulting in poor oral intake, enteric nutrient loss and increased energy requirements due to systemic inflammation.

Table 6: Malnutrition and Sarcopenia in ASUC vs all UC cohort

Nutritional screening	ASUC (n=79)	All other UC patients (n=336)	Significance (ASUC Vs UC)
Clinical history s/o malnutrition (weight loss/nutritional deficiency)	47 (59.5%)	166 (49.4%)	0.10
MUST ≥2	43 (54.4%)	95 (28.27%)	<0.0001
MIRT ≥3	64 (81%)	34 (10.11%)	<0.0001
Nutritional Assessment			
Height (m) (mean)	1.63±0.10	1.63±0.10	1.00
Weight (kg) (mean)	56.7 ±13.6	62.26±14.43	0.002
BMI (median (range))	21.2 ± 4.2	23.39 ±4.8	0.0002
Mid upper arm muscle circumference (cm)	24.7 (3.7)	25.66 ±3.92	0.04
Triceps skin fold thickness (mm)	10.17 (6.9)	13.18 ± 6.92	0.0004
Sarcopenia assessment			
Hand grip strength <33 kg	19.6 ±9.8	30.26 ± 11.31	0.0001

Among the possible precipitants for disease flare, the commonest cause was infections (CDI 18.9%, CMV 12.6% and EBV 43%). Studies from other parts of India have reported similar rates of infections causing moderate to severe flares of UC, i.e. CDI in 3.4-32%[42,108,109,110] and CMV in 2.3-15.8%.[54,108]

Though both CDI and CMV have been shown to be associated with adverse clinical outcomes, all patients with ASUC with superadded infections in our study responded to medical therapy for these infections. This is in accordance with a study by Papadakis et al to determine the outcome of cytomegalovirus (CMV) infections complicating the course of inflammatory bowel disease (IBD). 10 patients were enrolled with severe, medically refractory IBD (five ulcerative colitis, three Crohn's colitis, and two indeterminate colitis) who developed CMV infection. 8 patients had documented colonic CMV (one had concurrent upper GI tract involvement), one developed interstitial CMV and Pneumocystis carinii pneumonia, and one developed primary CMV mononucleosis. Prompt treatment with ganciclovir and withdrawal of immunosuppressive treatment resulted in gradual improvement and induction of remission of the underlying IBD in five patients. The patient with concomitant CMV and P. carinii pneumonitis died. In two patients, treatment with ganciclovir did not alter the clinical course of their IBD, and one of them underwent colectomy. In one patient CMV was found on the resected colonic specimen. One patient with primary CMV infection responded also to ganciclovir treatment. It was concluded that CMV infection may aggravate the course of seemingly refractory IBD in patients who either fail to respond or experience worsening of symptoms despite immunosuppressive therapy; and expedient evaluation, prompt treatment intervention with ganciclovir and withdrawal of immunosuppressive treatment may avoid complications and mortality.[111]

Superadded EBV colitis may be associated with chronicity, acute exacerbations of UC and refractory disease; and may also result in progression to lymphoproliferative diseases.[55] Thirty-four (43%) of our patients were tested positive for EBV, two of whom required colectomy. EBV superinfection may have been a contributing factor for a more severe disease in these 2 patients, suggesting that in patients with acute flares of UC, testing for lytic EBV should be included, especially in patients who have been on long-term immunosuppressive therapies.[55]

Use of drugs like non-steroidal anti-inflammatory drugs (NSAIDs), antibiotics and complementary and alternative medications (CAM) was the next most common cause of disease flares (n=11,13.9%). Such drugs are used pervasively in India and are often bought over the counter, without a physician's prescription.[112,113] NSAIDs may result in mucosal damage by inhibition of cyclo-oxygenase and reduction in prostaglandins which play an important role in mucosal defense. Enterohepatic circulation of NSAIDs may also damage membrane phospholipids and increase intestinal permeability.[114] A strong positive association between regular use of aspirin and development of Crohn's Disease (OR 6.14) has been shown in a cohort of 135,780 individuals recruited into the EPIC (European Prospective Investigation into Cancer and Nutrition) study.[115] Antibiotic use may alter gut microbiota and therefore predispose to development of IBD. A nested case-control analysis of population based University of Manitoba Inflammatory Bowel Disease Epidemiologic Database found that subjects with IBD had higher antibiotic use 2-5 years before diagnosis.[116]

In addition, use of antibiotics (such as fluoroquinolones, clindamycin, cephalosporins, and penicillins) is associated with increased risk of CDI, which results in disease flares and adverse clinical outcomes. This is in accordance with a study by Kariv et al on "Impact of Clostridium difficile infection in patients with ulcerative colitis" It was concluded that recent antibiotic exposure was a risk factor for CDI in UC patients and CDI does

not seem to adversely affect short-term adverse clinical outcome (colectomy).[117]

Various herbal and dietary supplements, probiotics and traditional medicines have been used by IBD patients who tend to seek cheaper and natural ways beyond conventional therapy as they are perceived to be less toxic.[118,119] Despite a lack of definite evidence for therapeutic benefit of these CAM, their use by IBD patients has been estimated to be as high as 20-60%.[22,31] These CAM may be impure and contaminated, especially with toxic metals, resulting in adverse events like hepatotoxicity, pulmonary hypertension and flares of IBD.[120] Furthermore, patients who use CAM tend to be drug-non compliant and this in turn results in disease progression and complications.[121] Drug non-compliance (n=23, 29.1%) was another possible cause of flare. The commonest reasons for non-compliance were non-affordability, use of CAM, mis-beliefs about safety and efficacy of medicines and non-availability of drugs in smaller towns and villages. A systematic review of 17 studies (4322 IBD patients) showed that rates of non-compliance to oral drugs varied between 7 to 72% (with most studies reporting rates between 30-45%).[32] Non-adherence to therapy has been shown to increase risk of flares, hospitalization, disability and eventually need for treatment escalation.[33,122]

The colectomy free survival at day 30 was 84.2% (on ITT, 60.8% PP). Mortality at day 30 was high (10%) when compared to other studies from India and the West.[27,53] This high mortality could be due to more severe disease, delayed presentation and severe malnutrition in IBD patients in our cohort.

SUMMARY AND CONCLUSIONS

79 hospitalized ASUC patients satisfying the Trulove and Witt's criteria from a tertiary care centre in northern India were included. The clinical profile, disease characteristics and possible precipitating factors for acute flare were assessed. Response to IV steroids was assessed on days 3, 5 and 7 as complete (≤ 3 stools/day without blood), partial (3-8 stools/day, with CRP <45 mg/dl) and non-response (>8 stools/day, or 3-8 stools/day and CRP>45 mg/dl). Patients were followed up for 3 months and outcomes at day 7, day 30 and day 90 were assessed.

1. Of 79 ASUC patients, majority were young (<40 years, 51.9%) and presented within the first year of diagnosis (45.6%).
2. The presentation to hospital was delayed (>7days of onset of symptoms in 88.6%), and 72% patients were malnourished. Majority of the patients had ≥2 features of systemic toxicity (81% fulfilled ≥2 TW criteria, in addition to bloody stool frequency ≥6 per day).
3. Previous flares (requiring hospitalization) had been reported in 30 (37.9%) patients (1 flare in 10 (12.7%), 2 in 6 (7.6%), 3 in 6 (7.6%) and multiple flares in 8 (10.1%)). Nearly four-fifth (n=62, 78.5%) of the patients had been treated with corticosteroids in the past.
4. The probable precipitating factors included infections (Clostridiodes difficile 18.9%, cytomegalovirus 12.6%, Epstein Barr virus 43%), drugs (NSAIDs (13.9%), antibiotics (26.6%), complementary medicines (38%)), poor drug compliance (29.1%) and unaccustomed exercise (10%).
5. The colectomy free survival at day 7 and day 30 was 83.5% and 84.2% (intention to treat) and 60.8% (per protocol), respectively.
6. The high mortality (10%) could be due to delayed presentation, severe malnutrition and use of oral corticosteroids at the time of hospitalization in IBD patients in our cohort.

Patients with ASUC present at a younger age, during early disease course, have more severe disease at presentation and severe malnutrition. The disease is precipitated by infections, drugs, poor compliance to therapy and unaccustomed exercise. Identification of such risk factors early and timely intervention is important to reduce the high mortality rates in this disease cohort.

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S. No.	MRD	Name	Day 3	Day 5	Day 7	Discharge outcome	UCEIS	Age	Sex	D.O.B	D.O.A	D.O.D	Year Of Diagnosis	Age at diagnosis	disease duration (years)	disease duration	Family history of UC
1	1317619	SK	PR	PR	CR	R	6	18	F	06-06-2004	06-06-2022	13-06-2022	2022	18	0	2nd gp	No
2	1333023	GS	PR	CR	CR	R	5	27	M	06-02-1994	01-07-2022	05-07-2022	2022	27	0	2nd gp	No
3	1217119	HK	PR	CR	CR	R	5	79	M	01-12-1942	07-02-2022	15-02-2022	2021	78	1	2nd gp	No
4	1203611	NS	PR	CR	CR	R	5	48	M	08-11-1973	07-01-2022	12-01-2022	2021	47	1	2nd gp	No
5	1155939	R	PR	CR	CR	R	6	23	M	17-08-1998	20-08-2021	28-08-2021	2020	21	2	2nd gp	No
6	1282855	PS	CR	CR	CR	R	5	60	M	05-04-1962	05-04-2022	09-04-2022	2022	60	0	Index	No
7	1337209	LS	NR	PR	CR	R	6	24	M	26-08-1997	07-07-2022	13-07-2022	2021	23	1	2nd gp	No
8	1342650	SK	NR	PR	CR	R	6	60	M	02-02-1962	16-07-2022	25-07-2022	2022	60	0	Index	No
9	1302828	B	PR	CR	CR	R	6	23	F	03-01-1999	12-05-2022	19-05-2022	2022	23	0	2nd gp	No
10	1306675	SS	CR	CR	CR	R	7	18	M	06-07-2004	19-05-2022	24-05-2022	2021	17	1	2nd gp	No
11	1299704	AK	NR	CR	CR	R	5	24	F	07-05-1998	20-05-2022	27-05-2022	2021	23	1	2nd gp	No
12	802939	DL	NR	PR	CR	R	6	40	F	03-09-1981	27-03-2021	03-04-2021	2019	37	3		No
13	62020	PS	NR	PR	CR	R	5	21	M	15-12-2000	07-04-2022	12-04-2022	2014	13	8		No
14	217923	BK	PR	CR	CR	R	5	44	F	08-03-1978	10-06-2022	14-06-2022	2007	29	15		No
15	1184024	AK	NR	NR	CR	R	5	34	F	08-12-1987	01-10-2021	13-10-2021	2021	33	1	2nd gp	No
16	1141268	NK	PR	PR	CR	R	6	27	M	23-07-1994	23-07-2021	29-07-2021	2021	26	1	2nd gp	No
17	1240118	SK	PR	CR	CR	R	5	57	F	19-07-1965	17-01-2022	23-01-2022	2021	56	1	2nd gp	No
18	1137609	GC	NR	PR	CR	R	7	70	M	15-07-1951	16-07-2021	22-07-2021	2021	69	1	2nd gp	No
19	809825	BS	PR	PR	CR	R	5	44	M	14-09-1977	25-01-2022	31-01-2022	2021	43	1	2nd gp	No
20	1098251	SK	PR	PR	CR	R	6	44	F	28-04-1977	30-04-2021	05-05-2021	2021	43	1	2nd gp	No
21	1141123	CK	NR	CR	CR	R	6	37	F	22-07-1984	17-07-2021	30-07-2021	2020	35	2	2nd gp	No
22	1112850	HS	PR	PR	CR	R	5	26	M	24-05-1995	25-05-2021	30-05-2021	2020	24	2	2nd gp	No
23	1068743	SR	PR	PR	PR	R	5	35	F	04-04-1986	29-03-2021	05-04-2021	2020	33	2	2nd gp	No
24	960581	GS	PR	CR	CR	R	5	24	M	21-05-1997	22-05-2021	27-05-2021	2020	22	2	2nd gp	No
25	1133477	GS	PR	CR	CR	R	6	50	M	07-07-1971	08-07-2021	13-07-2021	2020	48	2	2nd gp	No
26	936632	BS	NR	CR	CR	R	6	62	M	22-06-1959	21-07-2021	25-07-2021	2020	60	2	2nd gp	No
27	1183154	RB	PR	CR	CR	R	5	32	F	30-09-1989	30-11-2021	04-12-2021	2020	30	2	2nd gp	No
28	1188595	MK	PR	PR	CR	R	7	30	F	09-10-1991	09-10-2021	18-10-2021	2019	27	3		No
29	695368	D	PR	PR	CR	R	7	43	M	11-04-1978	04-09-2021	07-09-2021	2018	39	4		No
30	1134144	M	CR	CR	CR	R	6	43	F	09-07-1978	03-01-2022	07-01-2022	2018	39	4		No
31	720747	GS	PR	PR	CR	R	5	35	M	02-05-1987	17-01-2022	23-01-2022	2017	30	5		No
32	1162070	TK	PR	PR	CR	R	6	65	M	06-03-1956	27-08-2021	02-09-2021	2017	60	5		No
33	188642	PPS	PR	CR	CR	R	5	39	M	24-01-1982	20-01-2022	26-01-2022	2017	34	5		No
34	1238899	DK	PR	CR	CR	R	5	26	F	24-04-1995	17-01-2022	23-01-2022	2015	19	7		No
35	1029295	SJ	CR	CR	CR	R	6	48	F	15-02-1974	02-07-2021	08-07-2021	2013	39	9		yes
36	417076	RK	PR	PR	CR	R	6	61	F	07-01-1960	02-07-2021	13-07-2021	2002	41	20		No
37	1274369	NB	PR	CR	CR	R	7	27	M	26-01-1995	31-03-2022	08-04-2022	2021	26	1	2nd gp	No
38	1136976	VJ	PR	CR	CR	R	6	42	F	20-03-1979	14-07-2021	18-07-2021	2021	41	1	2nd gp	No
39	1113115	VT	PR	PR	PR	R	7	47	M	16-08-1973	31-05-2021	07-06-2021	2020	46	1	2nd gp	No
40	1197931	SK	PR	CR	CR	R	5	23	F	26-10-1998	02-05-2022	08-05-2022	2021	22	1	2nd gp	No
41	799442	A	PR	CR	CR	R	6	27	F	30-08-1995	31-03-2022	05-04-2022	2019	24	3		No
42	1184158	KR	PR	PR	PR	R	7	42	F	02-10-1979	18-01-2022	27-01-2022	2018	38	4		No
43	1302374	AS	PR	CR	CR	R	6	37	M	22-02-1984	11-05-2022	20-05-2022	2022	37	0	Index	No
44	1337900	HK	NR	PR	PR	R	7	31	F	15-04-1990	21-07-2022	06-08-2022	2021	30	1	2nd gp	No
45	1326036	JKS	PR	PR	CR	R	6	40	F	01-01-1982	20-06-2022	30-06-2022	2022	40	0	Index	No
46	1308836	SSM	PR	PR	PR	R	7	45	M	08-12-1976	22-05-2022	05-06-2022	2022	45	0	Index	No
47	1308836	SSM	NR	PR	PR	R	7	45	M	12-08-1976	20-06-2022	07-07-2022	2022	45	0	2nd gp	No
48	1337808	SK	PR	PR	PR	R	7	34	M	06-02-1988	11-07-2022	27-07-2022	2022	34	0	2nd gp	No
49	1228818	I	PR	PR	CR	R	6	18	f	24-12-2003	10-03-2022	17-03-2022	2020	16	2	2nd gp	No
50	1011028	SS	NR	PR	PR	R	5	60	M	01-01-1956	25-05-2022	04-06-2022	2020	58	2	2nd gp	No

S. No.	MRD	Family history of CD	Disease Extent	Previous flares	Alcohol	Smoking	Opium	IVDU	Tobacco	Comorbidity	Past history of Infection	previous treatment							
												5-ASA	PREDNISOLONE	AZA	6MP	IFX	ADA	VDZ	TOFA	FMT
1	1317619	No	E2	nil	nil	nil	nil	nil	nil	nil	Recurrent URTI	yes	yes	nil	nil	nil	nil	nil	nil	nil
2	1333023	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
3	1217119	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	DM	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
4	1203611	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	yes	nil
5	1155939	No	E2 (atleast)	1	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
6	1282855	No	E1	nil	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
7	1337209	No	E1	nil	nil	nil	nil	nil	nil	nil	chicken pox	yes	yes	nil	nil	nil	nil	nil	yes	nil
8	1342650	No	E2	nil	yes	yes	nil	nil	nil	nil	chicken pox/herpes zoster	nil	nil	nil	nil	nil	nil	nil	nil	nil
9	1302828	No	E2	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
10	1306675	No	E2	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
11	1299704	No	E2	2	nil	nil	nil	nil	nil	nil	chicken pox	yes	yes	nil	nil	nil	nil	nil	nil	nil
12	802939	No	E2	1	nil	nil	nil	nil	nil	DM/Hypothyroid	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
13	62020	No	E2	nil	nil	nil	nil	nil	nil	nil	chicken pox	yes	yes	nil	nil	nil	nil	nil	nil	nil
14	217923	No	E2	multiple	nil	nil	nil	nil	nil	nil	chicken pox	yes	yes	yes	nil	yes	nil	nil	nil	yes
15	1184024	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
16	1141268	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	nil	nil	nil	nil	nil	nil	nil	nil
17	1240118	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
18	1137609	No	E2 (atleast)	nil	yes	nil	nil	nil	nil	DM/ CAD	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
19	809825	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
20	1098251	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
21	1141123	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
22	1112850	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
23	1068743	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
24	960581	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
25	1133477	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	nil	nil	nil	nil	nil	nil	nil	nil
26	936632	No	E2 (atleast)	multiple	nil	nil	nil	nil	nil	DM	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
27	1183154	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
28	1188595	No	E2 (atleast)	2	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
29	695368	No	E2 (atleast)	1	nil	nil	nil	nil	yes	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
30	1134144	No	E2 (atleast)	1	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
31	720747	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	yes
32	1162070	No	E2 (atleast)	nil	yes	nil	nil	nil	nil	HTN	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
33	188642	No	E2 (atleast)	nil	yes	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
34	1238899	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
35	1029295	No	E2 (atleast)	2	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	yes	nil
36	417076	No	E2 (atleast)	1	nil	nil	nil	nil	nil	DM	nil	yes	yes	yes	nil	yes	nil	nil	nil	nil
37	1274369	No	E3	2	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
38	1136976	No	E3	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
39	1113115	No	E3	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
40	1197931	No	E3	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	yes	nil
41	799442	No	E3	3	nil	nil	nil	nil	nil	nil	chicken pox	yes	yes	yes	nil	yes	nil	nil	nil	nil
42	1184158	No	E3	1	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
43	1302374	No	E3	nil	yes	nil	yes	nil	nil	nil	chicken pox	nil	nil	nil	nil	nil	nil	nil	nil	nil
44	1337900	No	E2 (atleast)	1	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
45	1326036	No	E2	nil	nil	nil	nil	nil	nil	HTN	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
46	1308836	No	E2	nil	yes	nil	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
47	1308836	No	E2	1	yes	nil	yes	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
48	1337808	No	E2	nil	yes	nil	nil	nil	nil	nil	chicken pox	yes	nil	nil	nil	nil	nil	nil	nil	nil
49	1228818	No	E2	multiple	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	yes	nil	nil	nil	nil
50	1011028	No	E2	nil	nil	nil	yes	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil

S. No.	MRD				Duration of Symptoms	NSAIDS	Anibiotics	Alternate Medicines	Infections	Dietery indiscretions	Stress	Travel	Unaccustomed Exercise	Poor Compliance	Others	Baseline Vitals(Day 0)
		SURGERY	BUDESONIDE	Others												BP
1	1317619	nil	nil	nil	≥7	nil	yes (f)	nil	nil	nil	yes	nil	nil	nil	nil	90/60
2	1333023	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	120/80
3	1217119	nil	nil	nil	≥7	nil	yes (f)	yes	nil	nil	yes	nil	nil	nil	nil	110/70
4	1203611	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	90/60
5	1155939	nil	nil	nil	≥7	nil	nil	nil	nil	yes	nil	nil	nil	nil	nil	110/70
6	1282855	nil	nil	Antibiotics	≥7	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	130/80
7	1337209	nil	nil	nil	≥7	nil	nil	yes	nil	yes	yes	nil	nil	yes	nil	100/60
8	1342650	nil	nil	nil	≥7	nil	yes (Ce)	nil	nil	nil	nil	nil	yes	nil	nil	110/80
9	1302828	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	90/60
10	1306675	nil	nil	Antibiotics	≥7	yes	nil	nil	UTI	yes	yes	nil	yes	nil	nil	100/60
11	1299704	nil	nil	nil	≥7	nil	nil	yes	nil	yes	yes	nil	nil	yes	nil	100/60
12	802939	nil	nil	nil	≥7	nil	nil	nil	nil	nil	yes	nil	nil	nil	nil	130/70
13	62020	nil	nil	nil	≥7	nil	nil	yes	nil	yes	nil	nil	nil	yes	nil	110/70
14	217923	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	yes	nil	110/70
15	1184024	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	100/60
16	1141268	nil	nil	nil	≥7	yes	yes (Ce)	yes	nil	nil	nil	nil	nil	nil	nil	120/80
17	1240118	nil	nil	nil	≥7	nil	nil	yes	nil	nil	nil	nil	nil	nil	nil	100/60
18	1137609	nil	nil	nil	≥7	nil	yes (A)	nil	nil	yes	nil	nil	nil	nil	nil	100/70
19	809825	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	110/76
20	1098251	nil	nil	nil	≥7	nil	yes (f)	nil	nil	nil	nil	nil	nil	nil	nil	106/70
21	1141123	nil	nil	nil	≥7	nil	yes (A)	nil	nil	nil	yes	nil	nil	nil	nil	106/70
22	1112850	nil	nil	nil	3-4 days	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	110/70
23	1068743	nil	nil	nil	≥7	nil	nil	nil	nil	nil	yes	nil	nil	nil	nil	130/70
24	960581	nil	nil	nil	≥7	nil	nil	yes	nil	nil	yes	nil	nil	yes	nil	110/70
25	1133477	nil	nil	nil	≥7	nil	nil	yes	nil	nil	nil	nil	nil	nil	nil	112/74
26	936632	nil	nil	nil	≥7	nil	nil	yes	nil	yes	nil	nil	nil	yes	nil	110/68
27	1183154	nil	nil	nil	≥7	nil	nil	nil	nil	yes	nil	nil	nil	nil	nil	104/70
28	1188595	nil	nil	nil	≥7	nil	nil	yes	nil	nil	nil	nil	nil	yes	nil	120/80
29	695368	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	yes	nil	104/68
30	1134144	nil	nil	nil	≥7	nil	nil	yes	nil	nil	yes	nil	nil	yes	nil	100/70
31	720747	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	110/70
32	1162070	nil	nil	nil	≥7	nil	nil	yes	nil	nil	nil	nil	nil	yes	nil	110/70
33	188642	nil	nil	nil	≥7	nil	nil	yes	nil	nil	nil	nil	nil	yes	nil	100/60
34	1238899	nil	nil	nil	≥7	nil	nil	yes	nil	nil	yes	nil	nil	yes	nil	100/70
35	1029295	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	90/60
36	417076	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	110/70
37	1274369	nil	nil	nil	≥7	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	100/60
38	1136976	nil	nil	nil	≥7	nil	yes (f)	nil	nil	nil	nil	nil	nil	nil	nil	96/74
39	1113115	nil	nil	nil	≥7	nil	yes (f)	nil	nil	nil	nil	nil	nil	nil	nil	110/70
40	1197931	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	yes	nil	90/60
41	799442	nil	nil	nil	≥7	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	120/80
42	1184158	nil	nil	nil	≥7	yes	nil	yes	nil	nil	nil	nil	nil	nil	nil	100/60
43	1302374	nil	nil	nil	≥7	yes	nil	yes	nil	yes	nil	yes	yes	nil	nil	110/70
44	1337900	nil	nil	nil	≥7	nil	yes (T)	nil	nil	nil	nil	nil	nil	yes	nil	100/60
45	1326036	nil	nil	nil	≥7	yes	yes (Ce)	yes	nil	nil	yes	nil	yes	nil	nil	120/70
46	1308836	nil	nil	nil	≥7	nil	nil	nil	nil	yes	nil	yes	nil	nil	nil	90/60
47	1308836	nil	nil	nil	1-2days	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	100/60
48	1337808	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	yes	nil	nil	nil	100/70
49	1228818	nil	nil	nil	5-6 days	nil	nil	yes	nil	nil	nil	yes	yes	yes	pet exposure	110/70
50	1011028	nil	nil	nil	≥7	yes	yes (f)	nil	nil	nil	nil	nil	nil	yes	nil	110/70

S. No.	MRD	TEMP	HR	History s/o malnutrition	Height	WT	BMI	MUAC	TSF	NRS 2002	MUST	MIRT	Hand Grip Strength	disease Characteristics (Day 0)					
														Number of stools with blood	Endo Mayo	Partial Mayo	Total Mayo	SCCAI	Number of stools
1	1317619	98	84	Y	157	46	18.66201469	22	11	2	2	5	12	6	3	7	10	9	8
2	1333023	98.2	104	N	173	71.8	23.99010993	27.5	6	1	0	3	30	7	2	7	9	8	4
3	1217119	99.4	112	Y	170	53.8	18.61591696	25	4	3	2	6	12	6	2	5	7	5	4
4	1203611	98.6	110	N	175	73	23.83673469	29	5	2	2	3	23	10	1	7	8	8	6
5	1155939	98.6	104	Y	167.5	54	19.24704834	24	5	2	2	5	17	9	2	8	10	12	3
6	1282855	97.8	72	Y	170	60	20.76124567	27	4	2	1	4	30	8	2	7	9	8	2
7	1337209	98	90	Y	173	55.5	18.5438872	25	3	3	3	6	18	15	2	7	9	10	10
8	1342650	98.6	100	Y	170	52	17.99307958	24	5	4	4	7	10	12	3	8	11	14	7
9	1302828	97.8	120	N	153	50	21.35930625	22.5	12	2	0	2	12	7	2	7	9	8	4
10	1306675	99	108	Y	170	53	18.33910035	23.5	4	2	3	6	33	8	3	7	9	7	3
11	1299704	97	98	Y	165	38	13.95775941	19	6	4	3	7	18	10	2	7	9	8	6
12	802939	98.2	82	N	162.5	66	24.99408284	28	14.5	2	0	3	21	25	2	8	10	14	12
13	62020	100.8	98	N	167.6	60.5	21.53809787	24	5	1	0	2	20	15	2	7	9	10	13
14	217923	98	78	N	154	47	19.81784449	26	16	2	1	1	20	10	2	8	10	12	3
15	1184024	98.8	104	Y	157	53	21.50188649	20	12	2	1	5	16	8	2	8	10	9	6
16	1141268	102	108	N	170	67	23.183391	23	3	2	2	6	27	12	2	7	9	12	7
17	1240118	97.4	84	N	160	52.3	20.4296875	28.5	20	2	1	4	19	9	2	7	9	8	4
18	1137609	99.4	103	Y	167.5	70	24.94987748	26	11	3	2	2	12	16	3	8	11	15	11
19	809825	98.9	107	N	170.18	75.4	26.03480368	26	9	1	0	2	34	14	2	8	10	11	8
20	1098251	98.9	86	Y	157.5	41.3	16.64902998	19	4	3	4	7	11	12	2	8	10	11	6
21	1141123	98.4	110	N	160	66	25.78125	28	15	1	0	3	16	11	2	8	10	12	4
22	1112850	98.6	112	Y	175	52	16.97959184	20	4.5	2	3	6	32	12	2	8	10	13	7
23	1068743	98.3	92	N	162.5	81	30.67455621	30	9	1	0	2	8	9	2	7	9	10	7
24	960581	98.1	82	Y	175.2	50	16.2892767	21	2	3	3	6	21	8	2	8	10	11	4
25	1133477	97.8	98	N	177	77.7	24.80130231	29	6.5	2	2	5	38	10	2	7	9	9	5
26	936632	97.2	88	Y	170	50	17.30103806	21	3	3	4	8	23	10	2	7	9	8	4
27	1183154	98.4	92	Y	157.4	40.9	16.50873712	20.5	12	3	2	7	9	11	2	8	10	9	5
28	1188595	98.2	96	N	155	56.6	23.55879292	24	18	1	0	3	22	7	3	8	11	10	4
29	695368	99.4	122	N	165	70	25.71166208	25	5	1	0	2	38	10	2	8	10	12	7
30	1134144	98.7	94	N	155	53.8	22.39334027	26	28	1	0	0	21	7	2	7	9	7	3
31	720747	98.2	84	N	180.3	80.7	24.82458982	28.5	10	1	0	2	38	9	2	7	9	10	6
32	1162070	98.8	93	Y	175	62	20.24489796	26	7	3	2	5	18	12	2	8	10	12	4
33	188642	98.6	95	Y	175	55.8	18.22040816	24	6	2	3	7	28	9	2	7	9	9	4
34	1238899	97.2	89	Y	160.2	44.6	17.37840184	27	25.5	2	2	6	12	9	2	7	9	9	4
35	1029295	98.4	102	N	153	62	26.48553975	27	25.5	1	1	4	13	9	2	7	9	9	2
36	417076	98.4	110	Y	157.4	46	18.6620147	27.5	14	2	3	7	15	9	2	7	9	10	4
37	1274369	98	104	N	182.8	90	26.93333461	29.5	9	1	0	2	21	7	3	8	11	8	4
38	1136976	98.6	104	Y	154.9	45	18.75468086	21.5	9	2	2	5	17	16	2	7	9	13	4
39	1113115	98	101	Y	167.4	40	14.27411147	22	3	3	4	7	15	7	3	7	10	8	5
40	1197931	98.8	96	Y	157	35	14.199359	16	2	2	3	5	13	11	2	8	10	12	8
41	799442	98.8	108	Y	162.5	49	18.55621302	20	7	3	2	6	14	6	2	6	8	7	4
42	1184158	98.3	115	Y	155	50	20.81165453	25	10	3	1	5	14	6	3	6	9	7	3
43	1302374	99.6	108	N	178	77	24.30248706	26	6	0	0	3	35	8	2	8	10	9	5
44	1337900	97	78	Y	165	49	17.99816345	21.5	11	5	5	8	4	12	3	9	12	14	10
45	1326036	97	80	Y	158	48	19.22768787	26	12	2	2	3	7	7	2	7	9	8	5
46	1308836	97.4	102	N	165	58	21.30394858	28	9	1	0	3	34	8	3	8	11	10	6
47	1308836	100.2	130	Y	165	48	17.63085399	25	6	4	6	8	10	7	3	7	10	9	5
48	1337808	98.6	120	N	172	65	21.97133586	27	9	1	0	2	20	8	3	7	10	11	6
49	1228818	98.4	88	Y	147	30.5	14.11448933	16	5	2	2	4	8	6	3	6	9	8	3
50	1011028	97.8	90	Y	171	50	17.09927841	22.5	8	4	6	8	8	13	2	8	10	11	9

S. No.	MRD	disease Characteristics (Day 3)		disease Characteristics (Day 5)			disease Characteristics (Day 7)			outcomes at day 7	disease
		number of stools with blood	Partial Mayo	Number of stools	number of stools with blood	Partial Mayo	Number of stools	number of stools with blood	Partial Mayo		Number of stools
1	1317619	5	7	4	1	5	2	0	2	CR	2
2	1333023	0	2	2	0	1	PD	PD	PD	D	2
3	1217119	1	4	3	0	1	2	0	0	CR	2
4	1203611	3	5	2	0	2	PD	PD	PD	D	2
5	1155939	1	3	2	0	1	2	0	1	CR	2
6	1282855	0	2	PD	PD	PD	PD	PD	PD	D	2
7	1337209	5	7	5	2	6	PD	PD	PD	D	4
8	1342650	2	7	4	0	4	2	0	2	CR	2
9	1302828	2	4	2	0	2	PD	PD	PD	D	2
10	1306675	0	2	2	0	2	PD	PD	PD	D	2
11	1299704	1	5	3	0	2	PD	PD	PD	D	3
12	802939	4	7	4	1	5	1	0	2	CR	2
13	62020	8	7	4	0	3	PD	PD	PD	D	4
14	217923	1	4	PD	PD	PD	PD	PD	PD	D	3
15	1184024	2	5	4	0	3	1	0	1	CR	1
16	1141268	3	5	4	1	4	2	0	2	CR	2
17	1240118	0	3	3	0	2	2	0	1	CR	2
18	1137609	4	8	4	1	5	2	0	2	CR	2
19	809825	3	6	5	0	3	2	0	1	CR	2
20	1098251	2	5	4	0	3	PD	PD	PD	D	4
21	1141123	1	4	2	0	1	2	0	1	CR	2
22	1112850	3	5	4	1	4	2	0	1	CR	2
23	1068743	5	7	5	4	5	2	1	3	CR	2
24	960581	0	3	2	0	2	2	0	1	CR	2
25	1133477	2	4	2	0	2	PD	PD	PD	D	2
26	936632	2	5	1	0	1	PD	PD	PD	D	1
27	1183154	0	3	2	0	1	PD	PD	PD	D	2
28	1188595	3	6	3	1	4	2	0	2	CR	2
29	695368	2	7	5	2	5	2	0	2	CR	2
30	1134144	0	2	2	0	1	PD	PD	PD	D	3
31	720747	3	6	5	1	4	2	0	1	CR	2
32	1162070	1	4	3	1	3	PD	PD	PD	D	3
33	188642	2	5	2	0	2	PD	PD	PD	D	2
34	1238899	0	3	2	0	2	PD	PD	PD	D	2
35	1029295	0	2	2	0	2	PD	PD	PD	D	2
36	417076	1	4	2	1	3	2	0	1	CR	2
37	1274369	0	3	2	0	2	1	0	2	CR	1
38	1136976	0	3	1	0	1	1	0	1	CR	1
39	1113115	3	6	5	2	5	2	1	3	CR	2
40	1197931	7	8	3	0	2	PD	PD	PD	D	3
41	799442	0	4	2	0	3	PD	PD	PD	D	2
42	1184158	1	3	3	0	2	2	0	2	CR	2
43	1302374	0	4	3	0	3	3	0	3	PR	3
44	1337900	7	9	7	2	8	8	5	9	PR	5
45	1326036	0	4	4	1	4	3	0	2	PR	3
46	1308836	2	6	6	1	6	4	0	3	PR	1
47	1308836	1	5	3	2	4	5	3	5	PR	3
48	1337808	3	6	4	2	5	7	0	5	PR	3
49	1228818	1	4	3	1	4	3	0	3	PR	3
50	1011028	4	7	7	1	6	4	0	3	PR	4

S. No.	MRD	e Characteristics (Day Of Discharge)		Concomintat T/t												Rescue Therapy							
		number of stools with blood	Partial Mayo	IV Sterioids	Oral Steroids	Rectal Steroids	Oral 5-ASA	Rectal 5-ASA	AZA	6MP	TOFA	LMWH	Antibiotics Name	other	IFX	ADA	VDZ	CYS-A	TAC	TOFA	SURGERY	(day 0)
1	1317619	0	2	yes	nil	nil	nil	nil	nil	nil	nil	yes	G	nil	nil	nil	nil	nil	nil	nil	nil	OSS
2	1333023	0	1	yes	nil	nil	nil	nil	nil	nil	nil	nil	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
3	1217119	0	0	yes	nil	nil	yes	yes	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
4	1203611	0	2	yes	nil	yes	nil	yes	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	OLD
5	1155939	0	1	yes	nil	nil	yes	yes	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OSS
6	1282855	0	2	yes	nil	nil	nil	nil	nil	nil	nil	nil	M	nil	nil	nil	nil	nil	nil	nil	nil	OSD
7	1337209	1	4	yes	nil	nil	nil	nil	nil	nil	yes	yes	M/V	nil	nil	nil	nil	nil	nil	nil	nil	ONS
8	1342650	0	2	yes	nil	nil	nil	nil	nil	nil	nil	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OSS
9	1302828	0	2	yes	nil	yes	nil	nil	nil	nil	nil	nil	M/V	nil	nil	nil	nil	nil	nil	nil	nil	NPO
10	1306675	0	2	yes	nil	nil	nil	yes	nil	nil	nil	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OSS
11	1299704	0	2	yes	nil	yes	yes	nil	nil	nil	nil	nil	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OSS+ONS
12	802939	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
13	62020	0	3	yes	nil	nil	nil	nil	nil	nil	nil	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OSS
14	217923	0	3	yes	nil	nil	nil	nil	nil	nil	nil	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OSS
15	1184024	0	1	yes	nil	nil	nil	nil	nil	nil	nil	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	NPO
16	1141268	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
17	1240118	0	1	yes	nil	yes	nil	yes	nil	nil	nil	yes	M/V	nil	nil	nil	nil	nil	nil	nil	nil	OLD
18	1137609	0	2	yes	nil	yes	nil	nil	nil	nil	yes	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
19	809825	0	1	yes	nil	nil	nil	nil	nil	nil	nil	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
20	1098251	0	3	yes	nil	nil	nil	nil	nil	nil	yes	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
21	1141123	0	1	yes	nil	yes	nil	yes	nil	nil	yes	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
22	1112850	0	1	yes	nil	nil	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
23	1068743	0	2	yes	nil	nil	nil	nil	nil	nil	nil	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
24	960581	0	1	yes	nil	nil	nil	yes	nil	nil	nil	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
25	1133477	0	2	yes	nil	nil	yes	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
26	936632	0	1	yes	nil	nil	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
27	1183154	0	1	yes	nil	nil	nil	nil	nil	nil	yes	yes	M/V	nil	nil	nil	nil	nil	nil	nil	nil	OLD
28	1188595	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
29	695368	0	2	yes	nil	nil	nil	yes	nil	nil	yes	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OSS
30	1134144	0	1	yes	nil	yes	nil	yes	nil	nil	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	OSS
31	720747	0	1	yes	nil	yes	nil	yes	nil	nil	nil	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
32	1162070	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
33	188642	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
34	1238899	0	2	yes	nil	yes	nil	yes	yes	nil	nil	yes	M	nil	nil	nil	nil	nil	nil	yes	nil	OLD
35	1029295	0	2	yes	nil	nil	nil	nil	yes	nil	nil	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OSS
36	417076	0	1	yes	nil	nil	nil	nil	nil	nil	yes	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
37	1274369	0	2	nil	yes	nil	nil	nil	nil	nil	yes	nil	M/V	nil	nil	nil	nil	nil	nil	nil	nil	OSS
38	1136976	0	1	yes	nil	nil	nil	yes	nil	nil	nil	nil	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
39	1113115	1	3	yes	nil	yes	nil	yes	nil	nil	nil	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
40	1197931	0	2	yes	nil	yes	nil	yes	nil	nil	nil	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	OLD
41	799442	0	3	yes	nil	nil	nil	yes	yes	nil	yes	nil	M	nil	nil	nil	nil	nil	nil	nil	nil	OSS
42	1184158	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	OLD
43	1302374	0	3	yes	nil	nil	nil	yes	nil	nil	nil	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
44	1337900	1	4	yes	nil	nil	nil	nil	nil	nil	nil	yes	M/V	nil	yes	nil	nil	nil	nil	nil	nil	EEN
45	1326036	0	2	yes	nil	nil	nil	yes	nil	nil	nil	yes	M/V	nil	nil	nil	nil	nil	nil	nil	nil	OSS
46	1308836	0	2	yes	nil	yes	nil	nil	nil	nil	nil	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OSD
47	1308836	0	2	yes	nil	yes	nil	yes	nil	nil	nil	yes	G/M/Mer/V	nil	nil	nil	nil	nil	nil	nil	nil	OLD+ONS
48	1337808	0	2	yes	nil	yes	nil	yes	nil	nil	nil	nil	M/V	nil	nil	nil	nil	nil	nil	nil	nil	OLD+ONS
49	1228818	0	3	yes	nil	yes	nil	yes	nil	nil	yes	yes	M/V	FMT	nil	nil	nil	nil	nil	nil	nil	EEN
50	1011028	0	3	yes	nil	yes	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD+ONS

S. No.	MRD	DIET Name			DIET Name (day of discharge)	COMPLICATIONS NAME																					
		(day 3)	(day 5)	(day 7)			HB	TLC	PLT	ESR	CRP	FC	SUGAR	CHOLESTEROL	LDL	HDL	TG	AST	ALT	ALP	ALBUMIN	UREA	CREATININE	HBV	HCV	STOOL GDH	C.DIFF Toxin A
1	1317619	OSS	OSS	OSS	OSS	nil	9.8	15.3	421	NA	34.3	>2000	96	85	40	35	96	11	11	59	2.91	21	0.82	neg	neg	neg	neg
2	1333023	OSS+ONS	OSS+ONS	PD	OSS+ONS	nil	6.5	16.8	771	NA	65.39	>2000	81	NA	NA	NA	NA	14	9	85	2.64	18	0.88	NA	NA	neg	neg
3	1217119	OLD	OSS	OSS	OSS+ONS	nil	11.4	13.8	334	39	62.5	>2000	92	134	78	41	152	11	10	74	3.33	69	1.02	neg	neg	neg	neg
4	1203611	OSS	OSS	OSS	OSS	nil	6.4	6.1	333	50	4.96	>2000	111	NA	NA	NA	NA	22	17	76	3.54	18	0.59	neg	neg	neg	neg
5	1155939	OSS	OSS	OSS	OSS	nil	8.9	13.2	193	45	43.04	>2000	95	87	47	30	140	31	36	83	3.36	18	0.8	neg	neg	neg	positive
6	1282855	OSS	PD	PD	OSS	nil	9.7	10.5	325	112	21.07	>2000	133	NA	NA	NA	NA	15	9	91	3.34	24	1.35	neg	neg	neg	neg
7	1337209	OSS+ONS	OSS+ONS	PD	OSS+ONS	nil	4.1	14.8	517	52	42.37	1063	82	NA	NA	NA	NA	15	9	121	2	14	0.66	neg	neg	positive	positive
8	1342650	OSS	OSS	OSD	OSD	nil	12.7	20.6	652	NA	285.89	327	102	NA	NA	NA	NA	12	13	188	2.36	105	2.82	neg	neg	neg	neg
9	1302828	OSS	OSS	OSS	OSS	nil	10.9	8.9	209	72	23.98	1520	75	NA	NA	NA	NA	21	15	90	3.72	8	0.48	neg	neg	positive	positive
10	1306675	OSS	OSS	PD	OSS	nil	11.7	7.6	251	23	48.32	1908	83	137	84	34	166	20	23	88	3.59	22	0.83	neg	neg	neg	neg
11	1299704	OSS+ONS	OSS+ONS	OSS+ONS	OSS+ONS	nil	6.7	11.6	699	125	143.03	NA	74	NA	NA	NA	NA	26	69	186	3.06	11	0.42	neg	neg	neg	neg
12	802939	OLD	OLD	OSS	OSS	nil	10.3	7.1	296	56	54.1	>2000	102	126	79	41	84	13	10	80	3.19	24	0.96	neg	neg	neg	neg
13	62020	OSS	OSS	PD	OSS	nil	6.4	8.6	264	2	41.52	>2000	130	NA	NA	NA	NA	10	8	33	1.41	6	0.28	NA	NA	neg	neg
14	217923	OSS	PD	PD	OSS	nil	8.6	10.9	424	39	4.67	>2000	102	NA	NA	NA	NA	17	10	66	4.16	11	0.63	neg	neg	neg	neg
15	1184024	TPN	TPN	TPN	OSS+ONS	nil	8.7	9.5	437	92	114.2	>2000	82	NA	NA	NA	NA	14	4	73	1.53	30	0.33	NA	NA	neg	neg
16	1141268	OLD	OSS	OSS	OSS	nil	12	10.3	188	37	62.72	>2000	92	87	51	32	57	22	20	120	3.54	14	0.87	neg	neg	neg	neg
17	1240118	OSS	OSS	OSS	OSS	nil	9.4	20.2	412	61	23.9	>2000	110	132	71	40	90	24	17	96	3.16	9	0.77	neg	neg	positive	positive
18	1137609	OLD+ONS	OLD+ONS	OSS+ONS	OSS+ONS	nil	9.1	4	140	42	13.55	>2000	258	64	31	30	59	23	22	342	2.35	19	0.62	neg	neg	neg	neg
19	809825	OSS	OSS	OSS	OSS	nil	13.5	14.6	141	48	19.6	>2000	111	NA	NA	NA	NA	64	120	85	4.18	37	0.77	NA	NA	neg	neg
20	1098251	OSS	OSS	PD	OSS	nil	7.9	6.5	375	62	13.4	>2000	102	156	109	40	118	18	8	60	2.77	10	0.47	neg	neg	neg	neg
21	1141123	OSS	OSS	OSS	OSS	nil	9.4	7.5	346	102	95.03	>2000	119	104	67	29	106	24	192	163	2.42	20	0.42	neg	neg	neg	neg
22	1112850	OSS	OSS	OSS	OSS	nil	13.5	9.3	320	47	12.85	>2000	86	150	91	36	163	12	17	133	3.3	18	0.79	neg	neg	neg	neg
23	1068743	OLD	OSS	OSS	OSS	nil	6.9	9.1	447	34	37.8	>2000	199	143	83	50	145	12	7	61	3.4	24	0.4	neg	neg	neg	neg
24	960581	OSS+ONS	OSS+ONS	OSS+ONS	OSS+ONS	nil	10.3	7.6	289	22	31.32	>2000	98	119	74	40	54	23	10	81	4.5	18	0.75	neg	neg	neg	neg
25	1133477	OSS	OSS	PD	OSS	nil	11.5	5.2	274	36	26.24	>2000	147	124	82	37	64	30	34	161	3.68	19	0.86	neg	neg	neg	neg
26	936632	OLD	OSS	PD	OSS	nil	12.9	12.9	151	32	109.13	>2000	286	NA	NA	NA	NA	20	12	48	2.83	30	0.58	neg	neg	neg	neg
27	1183154	OSS	OSS	PD	OSS	nil	4.4	9.2	313	36	77.21	>2000	96	95	53	35	94	18	6	42	3.3	12	41	neg	neg	neg	positive
28	1188595	OLD	OSS	OSS	OSS	nil	10.8	16	406	29	110	>2000	109	89	42	30	83	24	61	109	3.34	38	0.6	neg	neg	neg	neg
29	695368	OSS	OSS	PD	OSS	nil	6.9	7.3	207	58	26.7	>2000	167	76	39	26	58	47	11	78	2.03	13	0.71	neg	neg	neg	neg
30	1134144	OSS	OSS	PD	OSS	nil	9.7	6.7	209	36	20.8	>2000	90	NA	NA	NA	NA	19	13	64	2.33	17	0.53	neg	neg	neg	neg
31	720747	OLD	OSS	OSS	OSS	nil	15.8	10.7	304	32	5.6	>2000	107	146	92	46	53	21	38	141	4.7	30	0.99	neg	neg	neg	neg
32	1162070	OSS	OSS	PD	OSS	nil	12.8	7.5	253	42	12.32	>2000	84	118	73	34	71	17	19	84	3.8	17	0.84	neg	neg	neg	neg
33	188642	OSS	OSS	PD	OSS	nil	8.1	6.7	445	26	62.3	>2000	120	72	33	17	95	116	121	104	2.83	17	0.77	neg	neg	neg	neg
34	1238899	OLD+ONS	OSS+ONS	PD	OSS+ONS	nil	10.1	9.4	448	57	11.8	>2000	77	109	65	39	64	24	16	73	4.6	22	0.68	NA	NA	neg	neg
35	1029295	OSS	OSS	PD	OSS	nil	10.8	8.1	288	34	11.48	>2000	126	204	136	54	66	16	14	78	3.86	15	0.56	neg	neg	neg	neg
36	417076	OLD	OSS	OSS	OSS	nil	12.4	6.6	282	36	75.48	>2000	147	137	79	42	96	30	14	161	3.36	21	0.63	neg	neg	neg	neg
37	1274369	OSS	OSS	OSS	OSS	nil	9.0	5.4	300	39	5.4	>2000	82	NA	NA	NA	NA	21	21	72	1.15	11	0.77	NA	NA	neg	positive
38	1136976	OSS	OSS	PD	OSS	nil	8.3	4.2	371	87	8.59	>2000	126	85	39	50	76	15	8	126	1.67	11	0.62	neg	neg	neg	neg
39	1113115	OLD	OSS	OSS+ONS	OSS+ONS	nil	8.3	8.2	699	85	44	>2000	114	63	29	27	75	10	16	83	2	41	0.9	neg	neg	neg	neg
40	1197931	OSS	OSS	PD	OSS	nil	4.4	15.6	931	70	26.96	>2000	119	90	47	33	63	15	8	70	2.58	13	0.44	neg	neg	neg	neg
41	799442	OSS	OSS	PD	OSS	nil	6.2	11.6	526	54	70.84	>2000	107	130	70	43	101	12	7	77	3.37	19	0.65	neg	neg	neg	neg
42	1184158	OSS	OSS	OSS	OSS	nil	7	13.7	677	65	126.5	1053	97	98	69	21	109	20	9	185	2.72	33	1.71	neg	neg	neg	neg
43	1302374	OSS+ONS	OSS+ONS	OSS+ONS	OSS+ONS	nil	9.8	9.2	204	113	294.8	1947	103	NA	NA	NA	NA	12	59	123	2.47	11	0.83	neg	neg	neg	neg
44	1337900	EEN	EEN	EEN	EEN	nil	9.7	12.21	457	50	76.28	>2000	70	NA	NA	NA	NA	12	15	46	2.61	19	0.41	neg	neg	neg	positive
45	1326036	OSS	OSS+ONS	OSS+ONS	OSS+ONS	nil	9.7	9.48	438	NA	1.33	>2000	103	NA	NA	NA	NA	17	11	53	3.58	21	0.51	NA	NA	positive	positive
46	1308836	OSS	OSS	OSS+ONS	OSS+ONS	nil	9.2	5.8	590	71	99.73	>2000	100	NA	NA	NA	NA	20	18	73	3.6	21	0.68	neg	neg	neg	neg
47	1308836	OLD+ONS	OSS+ONS	OSS+ONS	OSS+ONS	nil	11.6	21.31	253	67	334.58	NA	83	NA	NA	NA	NA	48	59	119	2.28	18	0.49	neg	neg	positive	neg
48	1337808	OSS+ONS	OSS+ONS	OSS+ONS	OSS+ONS	nil	6.6	10.6	579	NA	38.21	>2000	133	NA	NA	NA	NA	34	16	98	2.27	11	0.49	neg	neg	positive	positive
49	1228818	EEN	EEN	EEN	EEN	nil	13.5	14.6	257	34	30.86	>2000	92	NA	NA	NA	NA	17	11	58	2.91	22	0.42	NA	NA	neg	positive
50	1011028	OLD+ONS	OSS+ONS	OSS+ONS	OSS+ONS	nil	7.2	12.1	511	55	157.45	916	65	73	30	33	62	30	8	59	2.35	20	0.76	neg	neg	neg	neg

S. No.	MRD	INVESTIGATIONS DAY 0												Adverse Events Name	No. of days in ward
		STOOL C.DIFF Toxin B	C DIFF	CMV Histopathology	CMV IHC	CMV	EBV(ISH)/hpf	Mantoux	CXR	Blood Culture	Urine Culture	PCT	Others		
1	1317619	neg	N	neg	neg		12	NA	normal	NA	NA	NA	NA	nil	8
2	1333023	neg	N	neg	NA		NA	NA	normal	NA	NA	NA	NA	nil	5
3	1217119	neg	N	neg	neg		neg	neg	normal	neg	NA	neg	NA	nil	9
4	1203611	neg	N	neg	neg		neg	neg	normal	NA	NA	NA	NA	nil	6
5	1155939	neg	Y	neg	neg		neg	neg	normal	neg	neg	NA	NA	nil	9
6	1282855	neg	N	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	5
7	1337209	positive	Y	neg	neg		3	neg	normal	NA	NA	NA	NA	nil	7
8	1342650	neg	N	neg	neg		30	NA	normal	NA	NA	NA	NA	nil	10
9	1302828	positive	Y	neg	NA		NA	NA	normal	NA	NA	NA	NA	nil	7
10	1306675	neg	N	neg	NA		NA	NA	normal	NA	NA	NA	NA	nil	6
11	1299704	neg	N	neg	neg		9	neg	normal	NA	NA	neg	NA	nil	8
12	802939	neg	N	neg	NA		NA	neg	normal	NA	NA	neg	NA	nil	8
13	62020	neg	N	neg	neg		8	neg	normal	NA	E.Coli	neg	NA	nil	6
14	217923	neg	N	neg	NA		NA	neg	normal	NA	neg	NA	NA	nil	5
15	1184024	neg	N	neg	neg		38	neg	normal	NA	NA	neg	NA	nil	13
16	1141268	neg	N	neg	neg		7	NA	normal	NA	NA	neg	NA	nil	7
17	1240118	positive	Y	neg	neg		4	neg	normal	NA	NA	NA	NA	nil	7
18	1137609	neg	N	positive	positive	1	neg	neg	pleural effusion	NA	NA	NA	Echo-DCMP (EF=46%)	DVT + CHF	7
19	809825	neg	N	neg	neg		1	NA	normal	NA	NA	NA	NA	nil	7
20	1098251	neg	N	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	6
21	1141123	neg	N	neg	positive	1	16	neg	normal	NA	NA	NA	NA	nil	14
22	1112850	neg	N	neg	neg		neg	neg	normal	NA	NA	neg	NA	nil	6
23	1068743	neg	N	neg	neg		NA	neg	normal	neg	neg	neg	NA	nil	8
24	960581	neg	N	neg	neg		NA	neg	normal	NA	NA	NA	NA	nil	6
25	1133477	neg	N	positive	neg	1	4	NA	normal	NA	NA	NA	NA	nil	6
26	936632	neg	N	neg	neg		14	neg	normal	neg	neg	neg	NA	nil	5
27	1183154	positive	Y	neg	neg		neg	neg	normal	NA	NA	NA	NA	nil	7
28	1188595	neg	N	neg	neg		5	NA	normal	NA	NA	NA	NA	nil	10
29	695368	neg	N	neg	positive	1	2	NA	normal	NA	NA	NA	NA	nil	4
30	1134144	neg	N	neg	neg		neg	neg	normal	NA	NA	neg	NA	nil	5
31	720747	neg	N	neg	neg		3	neg	normal	NA	NA	NA	NA	nil	7
32	1162070	neg	N	neg	neg		neg	neg	normal	neg	NA	neg	NA	b/l retinal vein occlusion	7
33	188642	neg	N	neg	neg		neg	neg	normal	NA	NA	NA	NA	nil	7
34	1238899	neg	N	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	7
35	1029295	neg	N	neg	neg		neg	neg	normal	NA	NA	NA	NA	nil	7
36	417076	neg	N	positive	positive	1	5	neg	normal	neg	NA	NA	NA	nil	12
37	1274369	positive	Y	neg	neg		neg	neg	normal	NA	NA	NA	NA	nil	9
38	1136976	neg	N	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	5
39	1113115	neg	N	neg	positive	1	4	neg	normal	NA	NA	NA	NA	nil	8
40	1197931	neg	N	neg	neg		7	neg	normal	NA	NA	NA	NA	nil	7
41	799442	neg	N	neg	NA		NA	NA	normal	NA	NA	NA	NA	nil	6
42	1184158	neg	N	neg	neg		4	neg	normal	NA	NA	NA	NA	nil	10
43	1302374	neg	N	neg	neg		3	neg	normal	NA	NA	NA	nil	nil	10
44	1337900	positive	Y	neg	neg		3	neg	RUL nodule	NA	NA	NA	Echo- DCMP (EF32%), LL Doppler-DVT	DVT/DCMP/Covid	17
45	1326036	positive	Y	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	10
46	1308836	neg	N	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	15
47	1308836	neg	Y	neg	positive	1	4	neg	opacities	NA	neg	NA	hrct - penumonitis	nil	11
48	1337808	positive	Y	neg	neg		3	neg	normal	NA	NA	NA	NA	nil	17
49	1228818	positive	Y	neg	neg		4	neg	normal	NA	NA	neg	NA	increase apetite	8
50	1011028	neg	N	neg	NA		NA	neg	normal	neg	neg	neg	NA	nil	11

S. No.	MRD	No. of days in ICU	Total days	Condition at discharge	Treatment at Discharge													Follow up		Remarks
					5-ASA	PREDNISOLONE	AZA	6MP	IFX	ADA	VDZ	TOFA	FMT	Antibiotics	BUDESONIDE	PPI	Others	1 month	3 months	
1	1317619	0	8	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/Val	R	S	ADDED TOFA/LATER Sx
2	1333023	0	5	DH	yes	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/ONS	R	R	
3	1217119	0	9	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	ONS	LFU	LFU	
4	1203611	0	6	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	ONS	R	LFU	CONTINUED SAME
5	1155939	0	9	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	nil	R	LFU	POOR COMPLIANCE
6	1282855	0	5	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/ONS	LFU	LFU	
7	1337209	0	7	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	M/V	nil	nil	Ca/ONS	R	R	CONTINUED SAME
8	1342650	0	10	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/Val	LFU	LFU	
9	1302828	0	7	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/ONS	R	R	
10	1306675	0	6	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	LFU	LFU	
11	1299704	0	8	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/ONS	R	R	
12	802939	0	8	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	
13	62020	0	6	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	
14	217923	0	5	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	
15	1184024	0	13	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/ONS/Val	LFU	LFU	
16	1141268	0	7	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	CONTINUED SAME
17	1240118	0	7	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	V	nil	nil	Ca/ONS	R	R	TOFA ADDED
18	1137609	0	7	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS/Val	LFU	LFU	
19	809825	0	7	DH	yes	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	R	R	
20	1098251	0	6	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	LFU	LFU	
21	1141123	0	14	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/Val	R	R	CONTINUED SAME
22	1112850	0	6	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	LFU	LFU	
23	1068743	0	8	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	R	R	
24	960581	0	6	DH	yes	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	R	R	
25	1133477	0	6	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	
26	936632	0	5	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	LFU	LFU	
27	1183154	0	7	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	V	nil	yes	Ca	R	R	
28	1188595	0	10	DAMA	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	LFU	LFU	
29	695368	0	4	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	
30	1134144	0	5	DH	yes	nil	nil	nil	nil	nil	nil	yes	nil	nil	yes	yes	Ca	R	LFU	STARTED VDZ
31	720747	0	7	DH	yes	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	R	R	
32	1162070	0	7	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	CONTINUED SAME
33	188642	0	7	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS	R	R	
34	1238899	0	7	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS	LFU	LFU	
35	1029295	0	7	DH	yes	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	R	R	
36	417076	0	12	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS/Val	R	LFU	CONTINUED SAME
37	1274369	0	9	DH	nil	nil	nil	nil	nil	nil	nil	yes	nil	V	yes	yes	Ca/ONS	R	R	
38	1136976	0	5	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	LFU	LFU	
39	1113115	0	8	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/ONS/Val	E	E	CARDIAC EVENT
40	1197931	0	7	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	R	R	
41	799442	0	6	DH	yes	yes	yes	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS	R	R	
42	1184158	0	10	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	CONTINUED SAME
43	1302374	0	10	DH	yes	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	R	R	
44	1337900	5	12	DH	yes	yes	nil	nil	yes	nil	nil	nil	nil	nil	nil	yes	Ca/ONS/Dabi	R	R	
45	1326036	0	10	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	M/V	nil	yes	Ca	R	R	
46	1308836	0	15	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/ONS/Val	R	LFU	
47	1308836	7	18	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	C/V	nil	yes	Ca/ONS/Val	LFU	LFU	
48	1337808	0	17	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	V	NA	nil	Ca/ONS	R	R	
49	1228818	0	8	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	
50	1011028	0	11	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS	E	E	

S. No.	MRD	Name	Day 3	Day 5	Day 7	Discharge outcome	UCEIS	Age	Sex	D.O.B	D.O.A	D.O.D	Year Of Diagnosis	Age at diagnosis	disease duration (years)	disease duration	Family history of UC
51	1130712	AK	PR	PR	PR	R	6	23	M	09-02-1998	05-07-2021	12-07-2021	2020	21	2	2nd gp	No
52	1323929	PS	PR	PR	PR	R	6	34	F	04-11-1988	25-07-2022	02-08-2022	2020	32	2	2nd gp	No
53	1274147	JK	PR	CR	PR	R	5	18	F	29-07-2003	22-03-2022	02-04-2022	2019	15	3		No
54	811145	KK	NR	NR	NR	R	6	48	M	30-04-1974	14-05-2022	26-05-2022	2019	45	3		No
55	1277308	VK	NR	PR	PR	R	7	42	F	01-01-1978	28-03-2022	05-04-2022	2018	38	4		No
56	423633	SD	NR	NR	NR	S	6	60	F	20-08-1962	13-04-2022	10-05-2022	2013	51	9		yes
57	904113	SS	PR	CR	CR	R	5	42	M	22-02-1980	24-08-2021	30-08-2021	2021	41	1	2nd gp	No
58	1144993	VK	PR	PR	PR	R	6	28	M	10-10-1992	29-07-2021	06-08-2021	2021	27	1	2nd gp	No
59	1128697	S	NR	PR	PR	R	6	47	F	13-04-1975	28-06-2021	20-07-2021	2021	46	1	2nd gp	No
60	1177090	VG	NR	NR	PR	R	7	24	M	20-09-1997	28-09-2021	11-10-2021	2021	23	1	2nd gp	No
61	1034454	AS	PR	PR	PR	R	5	30	M	25-02-1991	12-05-2021	24-05-2021	2021	29	1	2nd gp	No
62	1163295	S	NR	NR	NR	DAMA	7	31	F	22-05-1990	28-08-2021	15-09-2021	2021	30	1	2nd gp	No
63	1158335	SK	PR	PR	PR	R	6	26	M	22-04-1996	20-08-2021	26-08-2021	2019	23	3		No
64	1130486	KS	PR	PR	PR	R	7	25	M	01-07-1996	01-07-2021	09-07-2021	2019	22	3		No
65	528432	BS	PR	PR	PR	R	6	60	M	28-06-1961	23-09-2021	08-10-2021	2018	56	4		No
66	1235301	KK	NR	PR	CR	R	6	32	F	18-10-1990	06-01-2022	14-01-2022	2014	24	8		No
67	77126	PK	PR	PR	PR	R	5	38	F	01-04-1983	13-07-2021	21-07-2021	2014	30	8		No
68	805869	DK	PR	PR	CR	R	6	56	F	09-09-1964	22-06-2021	02-07-2021	2011	45	11		No
69	1171779	RK	NR	NR	CR	R	6	62	F	11-09-1959	11-09-2021	30-09-2021	2011	51	11		No
70	1187390	MA	NR	CR	CR	R	5	43	M	08-10-1978	18-10-2021	26-10-2021	2021	42	1	2nd gp	No
71	1267414	NK	PR	PR	PR	R	6	39	M	05-01-1975	10-03-2022	18-02-2022	2020	37	2	2nd gp	No
72	1266863	GS	PR	PR	PR	R	7	35	M	25-04-1986	10-03-2022	23-03-2022	2019	32	3		No
73	1184158	KR	PR	CR	CR	R	7	42	F	02-10-1979	09-06-2022	14-06-2022	2018	38	4		No
74	1311730	SK	NR	NR	NR	E	6	38	F	28-10-1984	26-05-2022	28-05-2022	2022	38	0	2nd gp	No
75	1125186	ML	NR	NR	NR	S/E	8	56	M	22-05-1965	21-06-2021	03-07-2021	2021	55	1	2nd gp	No
76	1135043	M	PR	PR	NR	E	6	63	F	16-08-1958	14-05-2022	19-05-2022	2019	60	3		No
77	1195322	MK	PR	PR	NR	S/E	7	42	F	01-01-1980	22-10-2021	13-11-2021	2018	38	4		No
78	1274294	JPJ	NR	NR	NR	S	7	74	M	02-12-1947	22-03-2022	14-04-2022	2008	60	14		No
79	1165598	MK	NR	PR	PR	E	7	18	F	02-09-2003	02-09-2021	03-10-2021	2021	18	0	2nd gp	No

S. No.	MRD	Family history of CD	Disease Extent	Previous flares	Alcohol	Smoking	Opium	IVDU	Tobacco	Comorbidity	Past history of Infection	previous treatment							
												5-ASA	PREDNISOLONE	AZA	6MP	IFX	ADA	VDZ	TOFA	FMT
51	1130712	No	E2	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
52	1323929	No	E2	3	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
53	1274147	No	E2	2	nil	nil	nil	nil	nil	nil	chicken pox	yes	yes	yes	nil	nil	nil	nil	nil	nil
54	811145	No	E2	nil	nil	nil	nil	nil	nil	nil	chicken pox	yes	yes	yes	nil	nil	nil	nil	nil	nil
55	1277308	No	E2	1	nil	nil	nil	nil	nil	nil	chicken pox	yes	yes	yes	nil	nil	nil	nil	yes	nil
56	423633	No	E2	multiple	nil	nil	nil	nil	nil	nil	herpes zoster	yes	yes	yes	nil	yes	nil	yes	yes	yes
57	904113	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
58	1144993	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
59	1128697	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
60	1177090	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
61	1034454	No	E2 (atleast)	nil	yes	yes	yes	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
62	1163295	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
63	1158335	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
64	1130486	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
65	528432	No	E2 (atleast)	1	nil	nil	nil	nil	nil	DM	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
66	1235301	No	E2 (atleast)	3	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
67	77126	No	E2 (atleast)	3	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	yes	nil	nil	nil	nil
68	805869	No	E2 (atleast)	4	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
69	1171779	No	E2 (atleast)	multiple	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
70	1187390	No	E3	nil	nil	nil	nil	nil	nil	HTN	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
71	1267414	No	E3	multiple	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
72	1266863	No	E3	3	nil	nil	nil	nil	nil	nil	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
73	1184158	No	E3	2	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	yes	nil
74	1311730	No	E2 (atleast)	nil	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
75	1125186	No	E3	nil	nil	nil	nil	nil	nil	HTN	UTI	yes	yes	nil	nil	nil	nil	nil	nil	nil
76	1135043	No	E2	nil	nil	nil	nil	nil	nil	nil	nil	yes	nil	nil	nil	nil	nil	nil	nil	nil
77	1195322	No	E3	3	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil
78	1274294	No	E2 (atleast)	multiple	nil	nil	nil	nil	nil	DM	nil	yes	yes	yes	nil	nil	nil	nil	nil	nil
79	1165598	No	E3	0	nil	nil	nil	nil	nil	nil	nil	yes	yes	nil	nil	nil	nil	nil	nil	nil

S. No.	MRD				Duration of Symptoms	NSAIDS	Anibiotics	Alternate Medicines	Infections	Dietery indiscretions	Stress	Travel	Unaccustomed Exercise	Poor Compliance	Others	Baseline Vitals(Day 0)
		SURGERY	BUDESONIDE	Others												BP
51	1130712	nil	nil	nil	≥7	nil	yes (Ce)	yes	yes	nil	yes	nil	nil	nil	nil	110/70
52	1323929	nil	nil	nil	≥7	nil	nil	nil	nil	nil	yes	nil	nil	nil	nil	120/80
53	1274147	nil	nil	nil	5-6days	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	110/60
54	811145	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	120/70
55	1277308	nil	nil	nil	5-6days	yes	yes (f)	yes	yes	nil	nil	nil	nil	yes	nil	120/70
56	423633	nil	nil	nil	3-4days	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	110/70
57	904113	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	90/60
58	1144993	nil	nil	nil	≥7	nil	yes (f)	nil	nil	yes	nil	yes	nil	nil	nil	110/70
59	1128697	nil	nil	nil	≥7	nil	yes (Ce)	nil	yes	nil	nil	yes	yes	nil	nil	110/70
60	1177090	nil	nil	nil	≥7	nil	nil	nil	nil	yes	yes	nil	yes	nil	nil	104/70
61	1034454	nil	nil	nil	≥7	nil	nil	yes	nil	yes	nil	nil	nil	yes	nil	110/70
62	1163295	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	90/60
63	1158335	nil	nil	nil	5-6 days	nil	yes (f)	nil	nil	nil	nil	nil	nil		nil	110/70
64	1130486	nil	nil	nil	3-4 days	nil	nil	yes	nil	yes	yes	nil	yes	nil	nil	110/70
65	528432	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	106/68
66	1235301	nil	nil	nil	≥7	nil	nil	yes	nil	nil	yes	nil	nil	yes	nil	110/70
67	77126	nil	nil	Probiotics	≥7	yes	yes (A)	yes	nil	nil	yes	yes	nil	yes	nil	110/60
68	805869	nil	nil	nil	≥7	nil	nil	nil	nil	nil	yes	nil	nil	yes	nil	100/60
69	1171779	nil	nil	nil	3-4 days	nil	nil	yes	nil	yes	nil	nil	nil	nil	nil	110/70
70	1187390	nil	nil	nil	≥7	nil	nil	nil	nil	yes	nil	nil	nil	nil	nil	110/70
71	1267414	nil	nil	nil	≥7	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	100/70
72	1266863	nil	nil	nil	≥7	nil	nil	yes	nil	nil	nil	yes	nil	yes	nil	100/60
73	1184158	nil	nil	nil	≥7	yes	nil	yes	nil	nil	nil	nil	nil	nil	nil	100/60
74	1311730	nil	nil	nil	≥7	nil	yes (f)	nil	nil	nil	nil	nil	nil	nil	nil	90/60
75	1125186	nil	nil	nil	≥7	nil	yes (AG)	nil	yes	yes	nil	nil	nil	nil	nil	110/70
76	1135043	nil	nil	nil	≥7	nil	nil	yes	nil	nil	yes	nil	nil	nil	nil	110/70
77	1195322	nil	nil	nil	≥7	nil	yes (CA)	yes	nil	nil	nil	nil	nil	yes	nil	110/70
78	1274294	nil	nil	nil	≥7	nil	nil	nil	nil	nil	yes	nil	nil	nil	nil	120/70
79	1165598	nil	nil	nil	≥7	nil	nil	yes	nil	nil	nil	nil	nil	nil	nil	90/70

S. No.	MRD	TEMP	HR	History s/o malnutrition	Height	WT	BMI	MUAC	TSF	NRS 2002	MUST	MIRT	Hand Grip Strength	disease Characteristics (Day 0)					
														Number of stools with blood	Endo Mayo	Partial Mayo	Total Mayo	SCCAI	Number of stools
51	1130712	97.8	94	Y	172.5	56	18.81957572	26	7	4	4	7	22	9	2	7	9	11	7
52	1323929	97.4	90	N	159	55	21.75546853	26.5	18	1	0	2	18	10	3	7	10	10	8
53	1274147	98	120	N	152.5	52	22.35958076	27.5	13	1	0	3	10	8	2	7	9	9	5
54	811145	97.4	96	Y	167	51	18.28677973	23.5	5	3	3	5	37	10	3	7	10	9	9
55	1277308	99	88	N	162.5	76	28.78106509	33	32	1	0	3	10	15	3	9	12	13	10
56	423633	98	104	N	154.9	55	22.92238771	22	16	0	0	2	14	13	3	7	10	11	9
57	904113	98.1	112	N	172.7	67	22.4641571	28	12	1	0	3	34	12	2	7	9	11	6
58	1144993	98.6	114	N	155	70	29.13631634	28	14	1	1	4	35	9	3	8	11	8	5
59	1128697	98	96	Y	150	75	33.33333333	29	23	1	0	3	9	13	3	8	11	14	7
60	1177090	98.5	96	N	160	53	20.703125	21.5	4	2	1	5	37	9	3	8	11	12	7
61	1034454	98.7	109	Y	167.5	66	23.52417019	32	9	2	1	4	27	10	2	8	10	12	8
62	1163295	99.1	124	N	145	43	20.45184304	24	24	2	3	4	12	14	3	9	12	14	13
63	1158335	98.4	112	N	172.5	70	23.52446965	24	2	1	0	2	34	9	2	7	9	10	5
64	1130486	98	102	Y	177	60	19.15158479	27	7	2	2	6	33	10	3	9	12	12	8
65	528432	97.9	99	N	165	80	29.38475666	30	25	2	1	5	23	9	2	9	11	13	7
66	1235301	99.1	78	N	150	65.3	29.02222222	25	10	1	0	2	14	6	2	7	9	9	10
67	77126	98.2	120	Y	162	59	22.48132907	26	19	2	1	4	17	10	2	7	9	8	7
68	805869	98.5	112	Y	160.2	47	18.31356248	21.5	6	4	3	6	11	8	2	7	9	9	6
69	1171779	98.6	110	Y	150	49	21.77777778	25	10	2	1	5	12	11	2	7	9	10	7
70	1187390	99.6	131	Y	161	62.3	24.03456657	25	9	2	1	5	42	9	2	7	9	10	7
71	1267414	98	80	Y	152.5	41.1	17.67266864	23	5	4	2	4	20	6	2	7	9	7	2
72	1266863	98	98	Y	173	65	21.71806609	26	5	4	2	5	26	6	3	9	12	10	5
73	1184158	97.6	82	Y	155	40.1	16.69094693	24.5	9	4	2	7	12	7	3	7	10	8	6
74	1311730	99	112	Y	157	40	16.22783886	19	5	5	6	8	6	10	3	9	12	12	14
75	1125186	96.9	103	Y	178	89	28.08988764	32	28	2	2	3	29	7	3	8	11	10	8
76	1135043	97	80	Y	162	47	17.90885536	22	10	3	4	6	8	8	2	7	9	10	6
77	1195322	98.9	140	Y	120	25	17.36111111	16	4	5	6	8	7	9	3	8	11	14	6
78	1274294	98	112	Y	170	68	23.52941176	29	8	5	3	4	16	12	3	8	11	13	10
79	1165598	98.3	116	Y	130	29	16.6	18.5	8	4	5	7	10	8	3	8	11	12	7

S. No.	MRD	disease Characteristics (Day 3)		disease Characteristics (Day 5)			disease Characteristics (Day 7)			outcomes at day 7	disease
		number of stools with blood	Partial Mayo	Number of stools	number of stools with blood	Partial Mayo	Number of stools	number of stools with blood	Partial Mayo		Number of stools
51	1130712	4	6	5	2	4	4	0	3	PR	4
52	1323929	2	7	7	2	6	6	2	6	PR	6
53	1274147	2	6	2	0	3	4	1	4	PR	3
54	811145	3	7	10	5	8	9	0	6	PR	4
55	1277308	10	9	7	5	8	4	1	6	PR	4
56	423633	2	7	17	4	7	13	1	7	PR	DI
57	904113	2	6	3	0	2	3	0	2	PR	3
58	1144993	0	4	4	0	3	4	0	3	PR	3
59	1128697	3	7	6	2	6	4	0	3	PR	2
60	1177090	3	7	6	2	6	5	1	4	PR	5
61	1034454	2	7	5	1	4	7	3	5	PR	3
62	1163295	13	9	12	10	8	10	7	8	PR	4
63	1158335	2	4	5	2	4	5	1	4	PR	5
64	1130486	6	8	3	2	6	2	1	5	PR	2
65	528432	5	7	5	3	5	3	2	4	PR	2
66	1235301	5	8	5	1	4	3	0	2	PR	3
67	77126	5	6	4	1	4	4	0	3	PR	4
68	805869	2	5	4	0	3	3	0	2	PR	2
69	1171779	2	6	5	0	4	3	0	2	PR	2
70	1187390	3	5	3	0	2	3	0	2	PR	3
71	1267414	1	3	1	1	3	1	1	3	PR	1
72	1266863	5	9	5	5	9	4	4	8	PR	4
73	1184158	3	7	6	1	6	6	0	5	PR	5
74	1311730	14	9	Expired	Expired	Expired	Expired	Expired	Expired	E	Expired
75	1125186	5	8	5	2	5	8	8	9	S	DI
76	1135043	2	6	7	0	5	Expired	Expired	Expired	E	Expired
77	1195322	4	8	6	3	7	7	5	8	S	DI
78	1274294	8	8	12	7	8	14	8	8	S	DI
79	1165598	7	8	7	7	8	6	4	8	E	Expired

S. No.	MRD	Characteristics (Day Of Discharge)		Concomintat T/t												Rescue Therapy							
		number of stools with blood	Partial Mayo	IV Sterioids	Oral Steroids	Rectal Steroids	Oral 5-ASA	Rectal 5-ASA	AZA	6MP	TOFA	LMWH	Antibiotics Name	other	IFX	ADA	VDZ	CYS-A	TAC	TOFA	SURGERY	(day 0)
51	1130712	0	3	yes	nil	nil	nil	nil	nil	nil	nil	yes	C/M	nil	nil	nil	nil	nil	nil	yes	nil	OLD
52	1323929	2	6	yes	nil	yes	nil	yes	nil	nil	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	OLD
53	1274147	0	3	yes	yes	nil	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OSS+ONS
54	811145	0	3	yes	nil	yes	nil	yes	nil	nil	nil	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD+ONS
55	1277308	1	6	yes	nil	nil	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD+ONS
56	423633	DI	DI	yes	nil	yes	nil	yes	nil	nil	yes	yes	M/V	Probiotics	yes	nil	nil	nil	nil	nil	nil	OLD
57	904113	0	2	yes	nil	nil	nil	nil	nil	nil	nil	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OSS
58	1144993	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	G/M/Mer	nIL	nil	nil	nil	nil	nil	nil	nil	OLD
59	1128697	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	G/V	nil	nil	nil	nil	nil	nil	nil	nil	OLD
60	1177090	1	4	yes	nil	nil	nil	nil	nil	nil	yes	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
61	1034454	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	C/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
62	1163295	0	2	yes	nil	yes	nil	nil	nil	nil	nil	yes	G/M	nil	yes	nil	nil	nil	nil	nil	nil	OLD
63	1158335	1	4	yes	nil	nil	nil	yes	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
64	1130486	1	5	yes	nil	yes	nil	yes	nil	nil	nil	yes	M	nil	yes	nil	nil	nil	nil	nil	nil	OLD
65	528432	0	2	yes	nil	nil	nil	nil	nil	nil	yes	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
66	1235301	0	2	yes	nil	yes	nil	yes	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
67	77126	0	3	yes	nil	nil	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
68	805869	0	1	yes	nil	nil	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
69	1171779	0	2	yes	nil	nil	nil	nil	nil	nil	nil	yes	G/V	nil	nil	nil	nil	nil	nil	nil	nil	OLD
70	1187390	0	2	yes	nil	nil	nil	yes	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
71	1267414	1	3	yes	nil	nil	nil	yes	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	nil	OLD
72	1266863	4	8	yes	nil	nil	nil	nil	yes	nil	nil	yes	M	nil	yes	nil	nil	nil	nil	nil	nil	EEN
73	1184158	0	5	yes	nil	nil	nil	nil	nil	nil	nil	yes	G/M	nil	nil	nil	nil	nil	nil	nil	nil	OSS+ONS
74	1311730	Expired	Expired	yes	nil	yes	nil	yes	nil	nil	nil	yes	M/Mer	nil	nil	nil	nil	nil	nil	nil	nil	OLD
75	1125186	DI	DI	yes	nil	yes	nil	yes	nil	nil	nil	yes	C/M	nil	nil	nil	nil	nil	nil	nil	yes	OLD
76	1135043	Expired	Expired	yes	nil	yes	yes	yes	nil	nil	nil	yes	M/Mer	nil	nil	nil	nil	nil	nil	nil	nil	OSD
77	1195322	DI	DI	yes	nil	yes	nil	yes	nil	nil	nil	yes	M	nil	nil	nil	nil	nil	nil	nil	yes	OLD
78	1274294	DI	DI	yes	nil	nil	nil	nil	nil	nil	yes	yes	M	nil	nil	nil	nil	nil	nil	nil	yes	OLD
79	1165598	Expired	Expired	yes	nil	yes	nil	yes	nil	nil	nil	yes	M	nil	yes	nil	nil	nil	nil	nil	nil	OLD

S. No.	MRD	DIET Name			DIET Name (day of discharge)	COMPLICATIONS NAME																				
		(day 3)	(day 5)	(day 7)			HB	TLC	PLT	ESR	CRP	FC	SUGAR	CHOLESTEROL	LDL	HDL	TG	AST	ALT	ALP	ALBUMIN	UREA	CREATININE	HBV	HCV	STOOL FOBDH	C.DIFF Toxin A
51	1130712	OLD	OSS	OSS	OSS	nil	10.6	15.7	242	32	11.52	>2000	119	131	80	43	60	18	29	85	3.16	32	0.67	neg	neg	neg	neg
52	1323929	OLD	OSS	OSS	OSS	nil	8.5	8.1	267	35	28.4	421	92	164	95	51	55	13	11	48	3.62	17	0.52	neg	neg	neg	neg
53	1274147	OSS+ONS	OSD+ONS	OSD+ONS	OSD+ONS	nil	6.6	4.5	493	12	63.73	>2000	120	NA	NA	NA	NA	11	11	135	1.31	13	0.39	NA	NA	neg	neg
54	811145	OSS+ONS	OSS+ONS	OSS+ONS	OSS+ONS	nil	9.6	6.9	311	52	28.04	>2000	96	NA	NA	NA	NA	19	11	51	3.49	12	1.04	neg	neg	neg	neg
55	1277308	OLD+ONS	OLD+ONS	OLD+ONS	OLD+ONS	nil	7.3	12.5	321	28	62.15	>2000	96	150	89	38	101	19	19	75	3.64	15	0.82	neg	neg	neg	neg
56	423633	OLD	TPN	TPN	OSS	nil	12.1	7.6	351	28	41.96	>2000	136	NA	NA	NA	NA	15	17	79	3.65	15	0.59	neg	neg	positive	positive
57	904113	OSS	OSS	OSS	OSS	nil	11.5	5.9	533	99	55.5	>2000	112	99	47	42	45	11	9	70	2.77	11	0.58	neg	neg	neg	neg
58	1144993	OLD	OSS	OSS	OSS	nil	11.8	9.7	395	15	18.31	>2000	142	60	30	25	72	24	33	83	2.44	10	0.49	NA	NA	neg	neg
59	1128697	OLD	OLD	OSS	OSS	nil	6.7	9.1	350	16	60	>2000	96	110	56	26	103	13	10	104	1.64	28	1.49	neg	neg	positive	positive
60	1177090	OLD+ONS	OLD+ONS	OSS+ONS	OSS+ONS	nil	10.7	20.7	476	77	180.9	>2000	123	72	40	27	52	15	15	107	3.5	12	0.71	neg	neg	neg	neg
61	1034454	OLD+ONS	OLD+ONS	OSS+ONS	OSS+ONS	nil	12.1	11.6	386	32	18	>2000	94	108	72	29	102	42	40	110	3.05	20	0.81	neg	neg	neg	neg
62	1163295	OLD	OLD+ONS	OSS+ONS	OSS+ONS	nil	9.8	6	342	18	54.53	>2000	87	57	22	16	69	13	10	182	1.48	7	0.28	neg	neg	neg	neg
63	1158335	OSS	OSS	OSS	OSS	nil	10.9	13	342	17	6.75	>2000	126	170	94	58	69	23	21	144	4.39	20	1.1	neg	neg	neg	neg
64	1130486	OLD	OLD	OSS	OSS	nil	8.4	9.5	322	19	64.07	>2000	106	88	48	35	112	16	11	77	3.31	31	0.77	neg	neg	neg	neg
65	528432	OLD+ONS	OLD+ONS	OSS+ONS	OSS+ONS	nil	10	11.4	370	36	67.29	>2000	110	154	111	31	321	22	37	81	3.4	14	0.58	neg	neg	neg	neg
66	1235301	OLD	OSS+ONS	OSS+ONS	OSS+ONS	nil	10.4	12.6	443	45	16.5	>2000	116	110	79	26	118	22	13	66	2.52	11	0.3	neg	neg	neg	neg
67	77126	OLD	OSS	OSS	OSS	nil	10.1	6.7	325	39	6.4	>2000	94	120	74	36	91	15	6	96	3.05	10	0.86	NA	NA	neg	neg
68	805869	OSS	OSS	OSS	OSS	nil	11	6.4	293	54	14.8	>2000	210	220	138	72	118	23	25	105	3.83	25	0.94	NA	NA	neg	neg
69	1171779	OLD	OLD+ONS	OSS	OSS	nil	11	15.2	367	12	122.3	>2000	96	NA	NA	NA	NA	66	44	232	2.58	8	0.92	neg	neg	positive	neg
70	1187390	OLD	OSS	OSS	OSS	nil	10.5	11.3	379	69	160	>2000	107	106	60	24	128	18	22	215	3.04	28	1.55	neg	neg	positive	neg
71	1267414	EEN	EEN	EEN	EEN	nil	9.1	6.2	373	30	44.4	>2000	NA	126	50	35	164	32	12	130	2.33	35	0.8	neg	neg	neg	neg
72	1266863	EEN	EEN	EEN	EEN	Megacolon	10.5	7.5	600	6	93.68	NA	105	NA	NA	NA	NA	16	16	58	2.95	27	0.75	neg	neg	NA	NA
73	1184158	OSS+ONS	OSS+ONS	OSS+ONS	OSS+ONS	nil	8.1	7.5	120	32	46.11	>2000	195	88	24	53	77	20	10	150	1.83	8	0.92	neg	neg	neg	neg
74	1311730	OLD+ONS	Expired	Expired	Expired	sepsis with shock	12.2	21.3	235	52	348.5	NA	96	NA	NA	NA	NA	28	16	122	2.53	30	0.98	NA	NA	NA	NA
75	1125186	OLD	OLD	TPN	TPN	perforation	11.2	10.2	338	67	92.3	>2000	110	192	98	41	120	14	44	94	1.93	40	0.96	neg	neg	neg	neg
76	1135043	OSS+ONS	OSS+ONS	Expired	Expired	nil	8.4	6.1	413	36	54.3	NA	139	130	82	25	169	21`	15	165	2.29	19	0.55	neg	neg	neg	neg
77	1195322	OLD	OLD	OLD	OLD	sepsis with shock	8.6	10.6	254	29	73.2	442	110	39	15	21	59	20	14	172	1.64	17	0.35	neg	neg	neg	neg
78	1274294	OLD+ONS	OLD+ONS	OLD+ONS	OLD+ONS	fistula/abscess	8.2	23.4	439	66	33.29	>2000	132	134	74	44	114	10	8	56	2.23	37	1.08	neg	neg	neg	neg
79	1165598	OLD	OLD	OLD	OLD	sepsis with shock	10.3	32	247	18	138.8	>2000	88	NA	NA	NA	NA	14	9	45	1.69	9	0.28	neg	neg	neg	neg

S. No.	MRD	INVESTIGATIONS DAY 0												Adverse Events Name	No. of days in ward
		STOOL C.DIFF Toxin B	C DIFF	CMV Histopathology	CMV IHC	CMV	EBV(ISH)/hpf	Mantoux	CXR	Blood Culture	Urine Culture	PCT	Others		
51	1130712	neg	N	neg	neg		6	neg	normal	NA	NA	neg	CTE- Left sided colitis	nil	8
52	1323929	neg	N	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	9
53	1274147	neg	N	neg	NA		NA	NA	normal	NA	NA	neg	NA	seizure	10
54	811145	neg	N	neg	NA		NA	neg	normal	NA	NA	NA	CTE- Left sided colitis	nil	13
55	1277308	neg	N	neg	neg		neg	NA	normal	NA	NA	NA	NA	nil	9
56	423633	positive	Y	neg	neg		4	neg	normal	neg	neg	neg	stool multiplex- EPEC	nil	24
57	904113	neg	N	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	7
58	1144993	neg	N	neg	neg		NA	neg	normal	NA	NA	NA	NA	nil	9
59	1128697	positive	Y	positive	positive	1	5	neg	normal	NA	NA	NA	NA	nil	23
60	1177090	neg	N	neg	neg		10	neg	normal	NA	NA	NA	NA	Acne	14
61	1034454	neg	N	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	13
62	1163295	neg	N	neg	positive	1	2	neg	normal	neg	Enterococcus	neg	NA	mood changes	19
63	1158335	neg	N	neg	neg		neg	neg	normal	NA	NA	NA	NA	nil	7
64	1130486	neg	N	neg	neg		3	neg	normal	NA	NA	neg	NA	drug adverse effect	9
65	528432	neg	N	neg	positive	1	1	neg	normal	NA	NA	NA	NA	nil	16
66	1235301	neg	N	neg	neg		3	neg	normal	NA	neg	neg	NA	nil	9
67	77126	neg	N	neg	neg		neg	NA	normal	NA	NA	NA	NA	nil	9
68	805869	neg	N	neg	neg		2	neg	normal	NA	NA	neg	Echo- dcmp (EF=22%)	CHF	11
69	1171779	neg	Y	neg	neg		3	NA	normal	Acinetobacter	E. faecium	neg	NA	nil	15
70	1187390	neg	Y	neg	neg		4	NA	normal	NA	NA	NA	NA	nil	9
71	1267414	neg	N	neg	neg		neg	neg	normal	NA	NA	NA	NA	nil	8
72	1266863	NA	NA	neg	NA		NA	neg	normal	NA	NA	NA	NA	nil	13
73	1184158	neg	N	neg	neg		5	neg	normal	neg	E.coli	neg	NA	nil	12
74	1311730	NA	NA	NA	NA		NA	NA	opacities	NA	NA	12	Echo- EF=12%	myocarditis	0
75	1125186	neg	N	neg	neg		5	neg	normal	klebsiella	Pseudomona	neg	NA	septic shock	10
76	1135043	neg	N	neg	NA		NA	neg	opacities	NA	NA	neg	Echo- EF=15%/cad	Cardiac event	3
77	1195322	neg	N	neg	neg		8	neg	normal	NA	Klebsiella	NA	NA	fluid retention, sepsis	16
78	1274294	neg	N	neg	neg		2	neg	normal	neg	neg	neg	NA	nil	18
79	1165598	neg	N	neg	neg		3	neg	normal	neg	E.coli	6.4	ct chest/abd-pancolitis	fluid retention, sepsis	23

S. No.	MRD	No. of days in ICU	Total days	Condition at discharge	Treatment at Discharge													Follow up		Remarks
					5-ASA	PREDNISOLONE	AZA	6MP	IFX	ADA	VDZ	TOFA	FMT	Antibiotics	BUDESONIDE	PPI	Others	1 month	3 months	
51	1130712	0	8	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	LFU	LFU	
52	1323929	0	9	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS	R	R	
53	1274147	4	14	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	LFU	LFU	
54	811145	0	13	DH	yes	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca/ONS	R	R	STARTED VDZ
55	1277308	0	9	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS	R	R	
56	423633	3	21	DH	nil	nil	nil	nil	nil	nil	nil	nil	nil	C	nil	yes	Ca/ONS	S	S	
57	904113	0	7	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Ca	LFU	LFU	
58	1144993	0	9	DH	nil	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/Val	R	R	
59	1128697	0	23	DH	nil	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/Val	R	R	
60	1177090	0	14	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS/Val	R	R	CONTINUED SAME
61	1034454	0	13	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	
62	1163295	0	19	DAMA	yes	yes	nil	nil	yes	nil	nil	nil	nil	nil	nil	yes	Ca/ONS/Val	E	E	SEPSIS
63	1158335	0	7	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS	R	R	
64	1130486	0	9	DH	yes	yes	nil	nil	yes	nil	nil	nil	nil	nil	nil	yes	Ca	LFU	LFU	
65	528432	0	16	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS/Val	R	R	
66	1235301	0	9	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS	R	R	
67	77126	0	9	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	LFU	LFU	
68	805869	0	11	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	calcium/diuretics/ACE#	R	R	
69	1171779	5	20	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	V	nil	yes	Val	LFU	LFU	
70	1187390	0	9	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca	R	R	CONTINUED SAME
71	1267414	0	8	DH	yes	yes	nil	nil	nil	nil	nil	yes	nil	nil	nil	yes	Ca/ONS	LFU	LFU	
72	1266863	0	13	DH	yes	yes	yes	nil	yes	nil	nil	nil	nil	nil	nil	yes	Ca/ONS	R	R	Ifx STOPPED & TOFA STARTED
73	1184158	0	12	DH	yes	yes	nil	nil	nil	nil	nil	nil	nil	nil	nil	yes	Val	LFU	LFU	
74	1311730	3	3	Death	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	E	E	
75	1125186	3	13	Death	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	E	E	
76	1135043	3	6	Death	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	E	E	
77	1195322	7	23	Death	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	E	E	
78	1274294	6	24	DH	nil	nil	nil	nil	nil	nil	nil	nil	nil	C	nil	yes	Ca/ONS	LFU	LFU	
79	1165598	9	32	Death	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	E	E	

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Date 1/11/21

The Principal
DMC, Ludhiana.

Subject: **Approval of Plan of Thesis.**

This is to inform you that the Faculty of Medical Sciences in its meeting held on 29.10.2021 has approved the plan of thesis of **Mayur Luthra**, a student of your college for **DM Medical Gastroenterology** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis

Clinical profile and outcome of acute severe ulcerative colitis in a tertiary care hospital.

Supervisor
Dr. Ajit Sood
Prof. & Head,
Dept. of Gastroenterology,
DMCH, Ludhiana.

Co-Supervisor

Dr. Ramit Mahajan
Assoc. Prof.,
Dept. of Gastroenterology,
DMCH, Ludhiana.

The student has to submit the four copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

Dr. S P Singh MS(Opth)
Controller of Examinations

Note

16. If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.

16b The student may submit the thesis as per the schedule already conveyed i.e for May/June examination 30th Nov of the preceding the year of examination and for Nov/Dec examinations 31st May of the year of examination.

CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL

THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

DOCTORATE OF MEDICINE

IN

GASTROENTEROLOGY

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES
FARIDKOT

JULY, 2021

DR. MAYUR LUTHRA

DEPARTMENT OF GASTROENTEROLOGY
DAYANAND MEDICAL COLLEGE & HOSPITAL
LUDHIANA

ABSTRACT OF PLAN OF THESIS

Title	CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL
For the degree of	D.M Gastroenterology
Name of the candidate	Dr. Mayur Luthra
Supervisor	Dr. Ajit Sood, Professor & Head, Department of Gastroenterology, DMCH, Ludhiana
Co-supervisor	Dr. Ramit Mahajan, Associate Professor, Department of Gastroenterology, DMCH, Ludhiana
Institution	Dayanand Medical College & Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: ASUC is a medical emergency and a potentially life-threatening condition that requires prompt recognition and early initiation of treatment. Acute severe ulcerative colitis (ASUC) is defined as the presence of 6 or more bowel movements daily accompanied by at least 1 systemic sign of toxicity including tachycardia, fever, anemia (hemoglobin , 10.5 g/dL), or elevated inflammatory markers (ESR 30 mm/hr).

Aim of Study: To study the clinical profile and outcome of patients presenting with acute severe ulcerative colitis in DMC&H.

Materials & Methods: Patients with acute severe ulcerative colitis (defined by Truelove Witts Criteria) will be enrolled for the study for the period of 1 year with 3 months follow up after discharge (1 August 2021 to 31 October 2022).

Clinical Significance: To study the spectrum of acute severe ulcerative colitis in patients presenting to our hospital in terms of presentation, precipitating factors, demographics, management and outcome.

Keywords: UC, ASUC, Truelove Witts criteria, medical emergency, inflammation.

(Signature) Candidate

(Signature) Co-supervisor

(Signature) Supervisor

(Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled **"CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL"** exist in the Department of Gastroenterology, DMC&H, Ludhiana and will be provided to the candidate. We will see that the data being included in the thesis is genuine and is collected by the candidate himself under our supervision and guidance.

Supervisor

Dr. Ajit Sood
Professor & Head
Department of Gastroenterology
DMCH, Ludhiana

Co-Supervisor

Dr. Ramit Mahajan
Associate Professor
Department of Gastroenterology
DMCH, Ludhiana

Head of the Department

Dr. Ajit Sood
Professor & Head
Department of Gastroenterology
DMCH, Ludhiana

Place : _____

Date : _____

APPROVAL PROFORMA
BY RESEARCH & ETHICAL COMMITTEE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Name of candidate	Dr. Mayur Luthra
Department	Gastroenterology
Topic of Thesis	CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL
Likely date of appearing in PG examination	May-June 2023
Date of enrollment	22.12.2020
Name of Head of Department	Dr. Ajit Sood
1) Supervisor **2) Co-Supervisor**	Dr. Ajit Sood Dr. Ramit Mahajan
Signature of Members of Research Committee with Stamp	**Signature of Members of Ethics Committee with Stamp**
Dr. Harpreet Kaur (Professor & Head, Pathology)	Mr. R K Sharma (Legal Expert)
Dr. Jaspal Singh (Professor & Head, Surgery)	Dr. Ramit Mahajan (Associate Professor, Gastroenterology)
Dr. Dinesh Gupta (Professor & Head, Medicine)	Dr. Anu Sharma (Professor, Anatomy)
Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)	Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)
Dr. Gurpreet S Wander (Vice Principal)	Dr. Gurpreet S Wander (Vice Principal & Professor & Head, Cardiology)
	Dr. Gagandeep Singh (Secretary, Ethics Committee Professor & Head, Neurology)

Approved: Yes / No

Dr. Sandeep Puri
Chairperson
Research Committee

Chairperson
Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
Chairperson
Ethics Committee

Chairperson
Ethics Committee

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1	NAME OF THE CANDIDATE AND ADDRESS	Dr. MAYUR LUTHRA
2	NAME OF THE INSTITUTE	DAYANAND MEDICAL COLLEGE AND HOSPITAL
3	COURSE OF STUDY AND SUBJECT	D.M. GASTROENTEROLOGY
4	DATE OF ADMISSION OF COURSE	22.12.2020
5	TITLE OF THE TOPIC	CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL

6.0 BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR STUDY

UC is a chronic immune-mediated inflammatory condition of the large intestine that is frequently associated with inflammation of the rectum but often extends proximally to involve additional areas of the colon. The absence of rectal involvement has been noted in fewer than 5% of adult patients with UC at diagnosis but may be seen in up to one-third of pediatric-onset colitis.[1] The initial presentation of new UC is characterized by symptoms of an inflamed rectum, namely, bleeding, urgency, and tenesmus (a sense of pressure). The pattern of disease activity is most often described as relapsing and remitting, with symptoms of active disease alternating with periods of clinical quiescence, which is called remission. Some patients with UC have persistent disease activity despite diagnosis and medical therapy, and a small number of patients present with the rapid-onset progressive type of colitis known as fulminant disease.[2,3]

Determination of the extent and severity of disease is important to select the appropriate treatment algorithm. Extent of the disease should be characterized according to the Montreal classification as proctitis (E1), left-sided colitis (E2), or extensive colitis (E3) (extension proximal to the splenic flexure).[4,5] Commonly, severity of UC has been classified according to the Truelove and Witts' [6] criteria published in 1955. Mild colitis is defined as fewer than 4 bowel movements daily, normal temperature, heart rate, hemoglobin (>11 g/dL), and ESR (<20 mm/hr). Severe disease is defined by bowel frequency greater than 6 times a day in conjunction with fever, tachycardia, anemia, or an elevation in ESR. With increasing recognition of endoscopic mucosal response and remission as treatment targets and their prognostic significance for future relapses, need for hospitalization, and surgery, it is essential to include endoscopic severity assessment in the diagnosis and management of UC.[8,9] The Mayo endoscopic score is frequently used in clinical trials and

is simple to use in clinical practice, ranging from 0 for normal or inactive disease to 3 for severely active disease.[7]

Acute severe ulcerative colitis (ASUC) is defined as the presence of 6 or more bowel movements daily accompanied by at least 1 systemic sign of toxicity including tachycardia, fever, anemia (hemoglobin < 10.5 g/dL), or elevated inflammatory markers (ESR> 30 mm/hr).[6] In children, a PUCAI ≥ 65 is used to define ASUC.[10] Patients with ASUC should be admitted to the hospital for inpatient management, IVCS therapy initiation in addition to supportive care with fluids and electrolytes. Up to one-quarter of patients with UC may develop ASUC requiring hospitalization [11,12], resulting in colectomy in 40% of patients.[12] Even if the index hospitalization does not result in colectomy, patients requiring hospitalization represent a subgroup at a high risk of subsequent adverse outcomes including need for colectomy.[13]

Acoording to ACG Clinical Guidelines, all patients admitted with acute severe ulcerative colitis (ASUC) should have stool testing to rule out CDI. All patients with ASUC should undergo a flexible sigmoidoscopy within 72 hours, and preferably within 24 hours of admission. This should be used to assess endoscopic severity of inflammation and to obtain biopsies to evaluate for cytomegalovirus (CMV) colitis. All patients with ASUC should be assessed for the presence of toxic megacolon on a regular basis during the hospital admission. Response in patients with ASUC should be monitored using stool frequency, rectal bleeding, physical examination, vital signs, and serial CRP measurements. NSAIDs, opioids, and medications with anticholinergic side effects should be avoided in ASUC. In patients failing to adequately respond to medical therapy by 3–5 days or with suspected toxicity, surgical consultation should be obtained. The choice between infliximab and cyclosporine should be based on provider experience with the agent, history of previous failure of immunomodulator or anti-TNF therapy, and serum albumin. Toxic megacolon, colonic perforation, severe refractory hemorrhage, and refractoriness to medical

therapy are indications for surgery in patients with ASUC. Infliximab and cyclosporine do not increase postoperative complications of colectomy, and surgery should not be deferred based on this exposure.[14]

This study aims at studying the clinical profile of hospitalized patients with acute severe ulcerative colitis and access the outcome in these patients as the data is scarce from the Indian subcontinent.

6.2 REVIEW OF LITERATURE

UC is a chronic inflammatory bowel disease with peak onset in early adulthood.[3] Untreated, the natural history of the disease is one of relapsing and remitting mucosal inflammation. Based on population-based cohort studies, the majority of patients with UC have a mild to moderate course, generally most active at diagnosis and then in varying periods of remission or mild activity. Approximately 15% patients may experience an aggressive course, and 20% of these patients may require hospitalization for severe disease activity.[3,15] The 5- and 10-year cumulative risk of colectomy is 10%–15%, primarily limited to patients with moderate to severe disease activity; a subset of hospitalized patients with acute severe ulcerative colitis (ASUC) have short-term colectomy rates of 25%–30%.[15] Predictors of an aggressive disease course and colectomy are the following: young age at diagnosis (<40 years old), extensive disease, severe endoscopic activity (presence of large and/or deep ulcers), presence of extra-intestinal manifestations, early need for corticosteroids, and elevated inflammatory markers.[16]

ASUC is a medical emergency and a potentially life-threatening condition that requires prompt recognition and early initiation of treatment. Acute severe ulcerative colitis (ASUC) is defined as the presence of 6 or more bowel movements daily accompanied by at least 1 systemic sign of toxicity including tachycardia, fever, anemia (hemoglobin , 10.5 g/dL), or elevated inflammatory markers (ESR 30 mm/hr).[6]

Infectious causes of colitis should be ruled out by stool microscopy and bacterial culture, ELISA or PCR, in particular C.difficile infection. Pseudomembranous colitis is a potential manifestation of C. difficile infection that confers an additional risk of colectomy and mortality.[17] Various tests are available for the diagnosis of CDI in ASUC, the most common ones being ELISA against C. diff toxins A + B and nucleic acid amplification tests such as PCR.[18] The latter tests are more sensitive, but emerging evidence suggests that they may result in false-positive results,

particularly in patients without documented diarrhea.[18] In 1 series, up to 47% of hospitalizations for UC were associated with CDI.[19] Although other cohorts have reported a lower frequency, patients with UC and CDI have a 4-fold increase in mortality, longer hospital stays, and higher rate of colectomy, emergency department visits, therapy escalation, and hospitalizations up to 1 year after the index episode.[19-22] Although controlled trial data are limited, emerging evidence suggests a higher failure rate with metronidazole, suggesting that oral vancomycin should be the first-line agent for treatment of CDI in the hospitalized patient with ASUC.[18,23]

There are several goals of endoscopic evaluation in patients with ASUC, namely, to establish the severity of inflammation, to confirm the diagnosis (in the setting of diagnostic uncertainty), and to obtain biopsies to diagnose CMV colitis. As a complete colonoscopy in patients with severe inflammation may be associated with higher rates of colonic dilation and perforation, a carefully performed flexible sigmoidoscopy with minimal insufflation by an experienced operator is sufficient for most patients. Although there are no standardized endoscopic activity scores specific to ASUC, endoscopic findings of deep ulcerations correlate with failure of corticosteroid therapy and need for rescue therapy or colectomy. In a cohort of 89 patients hospitalized with ASUC, the UCEIS was higher in patients requiring rescue therapy or colectomy (median 6) than in those who did not (median 5, $P < 0.005$). A UCEIS score of 5 or greater was associated with a 50% likelihood of rescue therapy and 33% rate of colectomy compared with 27% and 9%, respectively, in those with a score of #4. [24]

In a Systematic review with meta-analysis on mortality in acute severe ulcerative colitis, six population-based studies with 741 743 patients and 47 referral centre based studies with 2556 patients were included. The pooled 3-month and 12-month mortalities were respectively 0.84% and 1.01%. Advanced age was significantly associated with both 3 month and

12 month mortalities (OR = 1.15 per year, 95% CI: 1.10- 1.20 and OR = 1.19 per year, 95% CI: 1.15-1.23 respectively). The pooled 3-month and 12-month mortalities were 0.78% and 0.85% in studies with median age of less than 50 and 2.81% and 4.17% in studies with median age of 50 or more, respectively. After adjustment for age, 3-month and 12-month mortalities did not differ between population-based and referral centre-based studies. It was concluded that mortality in acute severe ulcerative colitis is approximately 1% and is higher in older patients.[25]

6.3 AIMS AND OBJECTIVES:

To study the clinical profile and outcome of patients with acute severe ulcerative colitis presenting to a tertiary care centre.

7.0 MATERIAL AND METHODS:

7.1 SOURCE OF DATA: Patients presenting with acute severe ulcerative colitis to the gastroenterology department of DMC&H.

7.2 METHOD OF COLLECTION OF DATA

METHODS OF COLLECTION OF DATA

Patients presenting with acute severe ulcerative colitis will be enrolled for the study

Acute Severe UC will be defined on the basis of modified Truelove Witts Criteria.

Parameter	Mild	Moderate	Severe
Bloody stool/day	<4	≥4 or more if	≥6 and
Pulse	<90 bpm	≤90 bpm	> 90 bpm or
Temperature	<37.5 C	≤ 37.8 C	> 37.8 C or
Haemoglobin	>11.5 g/dL	>10.5 g/dL	<10.5 g/dL
ESR or	<20 mm/h	≤ 30 mm/h	>30 mm/h or
CRP	normal	≤ 30 mg/l	>30 mg/l

INCLUSION CRITERIA

1. Patients with acute severe ulcerative colitis (defined by Truelove Witts Criteria)
2. Subject must be at least 18 years of age.
3. Subjects who are willing and able to comply with treatment plan, laboratory tests, daily bowel movement diary call, and other study procedures.
4. Subjects who are willing to provide a written informed consent.

EXCLUSION CRITERIA

Presence of indeterminate colitis, microscopic colitis, ischemic colitis, infectious colitis, or clinical findings suggestive of Crohn's Disease.

DURATION OF STUDY: 1 year study with 3 months follow-up (1 August 2021 to 31 October 2022).

OUTCOME: To study the spectrum of acute severe ulcerative colitis in patients presenting to DMC&H

STATISTICAL ANALYSIS: Data will be described in terms of range; mean ±standard deviation (± SD), frequencies (number of cases) and relative frequencies (percentages) as appropriate. All statistical calculations will be done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

Yes

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Yes

8.0 LIST OF REFERENCES

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25. Systematic review with meta-analysis: mortality in acute severe ulcerative colitis Catherine Dong1 | Marie Metzger2 |

PROFORMA

Demographics

Patient ID	Date of Admission	Date of Discharge
Date of Birth	Age	Sex
Year of Onset of Symptoms	Year of Diagnosis	
Age at Diagnosis		
Family History of UC/CD		
Disease Extent **E1** **E2** **E3**		
Number of previous admissions with flare of UC		
Addictions		

	Type	Quantity	Remarks
Nil			
Smoking	Bidi		
	Cigarettes		
Alcohol	Beer		
	Wine		
	Whisky/Gin/Vodka/Rum		
	Country liquor		
Opium	Poppy flower (afeem)		
	Poppy husk (bhukki)		

Signature of Candidate **Signature of Supervisor**

	Poppy straw (doda)
	(*post*)
IVDU	
Others (please specify)	
Comorbidity	HTN/T2DM/Bronchial Asthma /CAD/COAD/Thyroid disorder/CVA/ Arthritis/Migraine (Headache)/ Others
Past History of Infections	Herpes Zoster (Shingles)/ Chicken Pox / Tuberculosis / Recurrent Diarrhea/ Recurrent URTI/ Recurrent UTI/ Others

Past treatment

	Yes/No	**Max Dose Received (if available)**	**Remarks**
Oral 5-ASA			
Rectal 5-ASA			
Oral Corticosteroids			
Rectal Corticosteroids			
Azathioprine			
6-MP			
Infliximab			
Adalimumab			

Signature of Candidate **Signature of Supervisor**

Vedolizumab

FMT

Tofacitinib

Probiotics

Surgery

Others

Duration of symptoms before current admission (Days)

1-2 days **3-4 days** **5-6 days** **≥ 7 days**

Precipitating Factors for ASUC (Ask within 4 weeks of onset of symptoms)

Factor	Yes/No	Remarks
History of NSAIDs		
History of Antibiotics		
History of alternate medications		
History of Infections		
Sore Throat/ Nasal Stuffiness		

Signature of Candidate **Signature of Supervisor**

Pneumonia

Conjunctivitis

Ear Infections

Skin Infections

Tuberculosis

UTI

Fever (Viral)

Enteric Fever

Gynae Infections

Diarrhea

Jaundice

Meningitis

Others

Dietary Indiscretions

Major change in diet

Street Food

Food from restaurant/dhaba

Stress

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Travel out of city/state/country	
Unaccustomed exercise/Riding on a tractor/Dance/Sports/Gym	
Alcohol/Smoking/Opium/Others	
Poor compliance to Medicines	Reason for poor compliance
	Costly
	Ran out of medicines
	Difficulty remembering
	Side effects
	Just not taking
Others (Please specify)	

Clinical Course

Signature of Candidate **Signature of Supervisor**

Day	0	1	2	3	4	5	6	7	10	14	28
Vitals and Anthropometry											
Blood Pressure *											
Temperature										X	X
Heart Rate										X	X
Weight		X	X	X	X	X	X	X	X	X	
Height		X	X	X	X	X	X	X	X	X	
BMI		X	X	X	X	X	X	X	X	X	
MIRT		X	X	X	X	X	X	X	X	X	
MUST		X	X	X	X	X	X	X	X	X	
NRS 2002		X	X	X	X	X	X	X	X	X	X
Hand grip strength		X	X	X	X	X	X	X	X	X	
Disease Characteristics											
Total Number of Stools											
Number of Stools with Blood											
Endo Mayo Score		X	X	X	X	X	X	X	X	X	X

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Day	0	1	2	3	4	5	6	7	10	14	28
Partial Mayo Score											
Total Mayo Score		X	X	X	X	X	X	X	X	X	X
SCCAI											
Concomitant Medications (Please ☑ if applicable and specify the dose)											
IV Hydrocort											
IV Methylpred											
Oral Steroids											
Rectal Steroids											
5-ASA Oral											
5-ASA Rectal											
Azathioprine											
6-MP											
Tofacitinib											
Methotrexate											
LMWH											
Metronidazole											
Tinidazole											
Levofloxacin											
Ciprofloxacin											
Ofloxacin											
Ceftriaxone											

Signature of Candidate **Signature of Supervisor**

Day	0	1	2	3	4	5	6	7	10	14	28
Cefotaxime											
Cefoperazone											
Cefepime											
Meropenem											
Imipenem											
Fluconazole											
Voriconazole											
Caspofungin											
Anidulafungin											
Vitamin D											
Others											
Rescue Therapy											
Infliximab											
Adalimumab											
Vedolizumab											
Cyclosporine											
Tacrolimus											
Tofacitinib											
Surgery											
Nutritional Support											
Nil per orally											

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Day	0	1	2	3	4	5	6	7	10	14	28
Oral Liquid Diet											
Oral Semisolid* Diet											
Oral Solid Diet											
Exclusive Enteral Nutrition											
Partial Enteral Nutrition											
Oral Nutritional Supplements											
Disease Complications											
Megacolon											
Toxic Megacolon											
Perforation											
Haemorrhage											
Malignancy											
Others											

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Investigations (Please fill if available)	
Hemoglobin	
TLC	
Platelets	
ESR	
CRP (Q)	
FecalCalpro	
FBS / RBS	
Cholesterol	
LDL	
VLDL	
HDL	
Triglycerides	
T Bilirubin	
D Bilirubin	
AST	
ALT	
ALP	

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x

Proteins	
Albumin	
Urea	
Creatinine	
HBs Ag	
Anti HCV	
C. difficile toxin	
CMV Histopath	
CMV IHC	
EBV (ISH)	
Mantoux	
X Ray Chest	
Blood Culture	
Urine Culture	
PCT	
Others	

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Adverse Events and Complications During Hospitalization											
Drug Hypersensitivity / Infusion Reaction											
Herpes Zoster											
Tuberculosis											
DVT											
Thromboembolism											
Cardiac Event											
Mood Changes											
Increased Appetite											
Fluid Retention											
Pathological Fractures											
Insomnia											
Acne											

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Others (Please specify)											

Discharge Notes		
Duration of Stay in Ward (Days)		
Duration of Stay in ICU (Days)		
Total Duration of Stay in Hospital (Days)		
Condition at Discharge	Discharge to Home Discharge to Another Hospital Discharged Against Medical Advice Referred to Higher Institute Death	

Medicines on Discharge		
	Dose	Remarks
5-ASA Oral		
5-ASA Rectal		

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Azathioprine		
6-MP		
Corticosteroids Oral		
Corticosteroids Rectal		
Tofacitinib		
Methotrexate		
LMWH		
Antibiotics		
Proton Pump Inhibitors		
Oral Nutrition Supplements		
Multivitamins		
Others		

Follow Up

	Number of Relapses till Follow Up	Treatment for Relapse	Colectomy (Yes/No)	Remarks
4 weeks				
12 weeks				

Signature of Candidate

Signature of Supervisor

INFORMED PATIENT CONSENT

Date: _____

I.....D/o, W/o, S/o.....
.....am willing to participate in the study **"CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL"** The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of thesis is being carried out. I am free to opt out the study any time without assigning any reason.

.....
Signature of the Witness

.....
Signature of the patient

Name:

Signature of Candidate

Signature of Supervisor

मरीज अनुमति फार्म

तिथि _____

मैं _____ पत्नी/पुत्र/पुत्री _____

निवासी _____

इस शोधकार्य "CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL" में भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के लिए अपनी स्वेच्छा से तैयार हूँ। मैं पुष्टि करता/करती हूँ की यह स्वीकृति देने के लिए मुझे कोई आर्थिक प्रलोभन नहीं दिया गया और न ही दबाव डाला गया है। मुझे इस शोधकार्य का उद्देश्य स्पष्ट कर दिया गया है और मुझे यह विश्वास है की यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

मैं इस शोधकार्य में भाग लेने के सम्बन्ध में किसी भी समय अपनी अस्वीकृति व्यक्त कर सकता/सकती हूँ और मेरे अस्वीकृति व्यक्त करने का मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

_____ _____

गवाह के हस्ताक्षर रोगी के हस्ताक्षर/अंगूठे का निशान

नाम: नाम:

_____

अन्वेषक के हस्ताक्षर

_____

विद्यार्थी के हस्ताक्षर

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫ਼ਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ _____

"CLINICAL PROFILE AND OUTCOME OF ACUTE SEVERE ULCERATIVE COLITIS IN A TERTIARY CARE HOSPITAL" ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ। ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ। ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

_____ _____

ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ_____ ਮਿਤੀ_____

ਪਤਾ _____ ਪਤਾ _____

_____

ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

_____

ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ